

# 3 Hazardous Materials

## 31 Definition

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A hazardous material is any article or substance designated by the U.S. Department of Transportation as being capable of posing an unreasonable risk to health, safety, or property during transportation. In international commerce, hazardous materials are known as “dangerous goods.” For definitions of other terms that relate to hazardous materials, see [Appendix D](#).

## 32 General

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### 321 **U.S. Department of Transportation**

The U.S. Department of Transportation (DOT) is the federal agency responsible for regulating the carriage of hazardous materials within the United States via any mode of transportation (e.g., highway, rail, air, water). The federal regulations of the DOT are codified in Title 49 *Code of Federal Regulations* (49 CFR), which contains the DOT’s detailed specifications for packaging, marking, and labeling hazardous materials. Title 49 CFR also exempts or establishes other requirements for limited quantities and small quantities of hazardous materials.

### 322 **Postal Service**

The carriage of U.S. Mail by the Postal Service is regulated by Title 39 *Code of Federal Regulations* (39 CFR) and is not subject to the federal regulations in 49 CFR that apply to commercial carriers. Unlike commercial carriers, the Postal Service is subject to the restrictions in Title 18 *United States Code 1716* (18 U.S.C. 1716), which prohibits from mailing all matter that is outwardly or of its own force dangerous to life, health, or property (see 211). As a result, most hazardous materials are nonmailable.

Accordingly, for legal and safety reasons, although mailing standards for hazardous materials in DMM 601.10 and this publication closely adhere to 49 CFR, the standards also include many additional limitations and prohibitions and often are more restrictive than the requirements of other commercial carriers. For example, 49 CFR allows commercial shippers to send

flammable materials by air, but the Postal Service prohibits the mailing of all flammable materials via air transportation.

Postal Service standards generally limit the mailing of hazardous materials to ORM-D materials as defined in 333. However, the standards do permit the mailing of a small number of hazardous materials having a greater handling and transportation risk than ORM-D materials. This allowance is limited to the following:

- a. Toy propellant devices and safety fuses in Division 1.4S, as permitted in 341.22 and DMM 601.10.11.2.
- b. Toxic substances in Division 6.1 that have an LD<sub>50</sub> for oral toxicity of greater than 5 mg/kg but less than 50 mg/kg, as permitted in 346.231 and DMM 601.10.16.
- c. Infectious substances (etiologic agents) and medical wastes in Division 6.2, as permitted in 346.23 and DMM 601.10.17.
- d. Radioactive materials in Class 7 that fall within the specific activity limits permitted in 347 and [Exhibit 347.22](#).
- e. Dry ice and magnetized materials in Class 9, as permitted in 349 and DMM 601.10.20.

### 323 Mailer Responsibility

Full responsibility rests with the mailer to comply with all Postal Service and non-Postal Service laws and regulations in the mailing of hazardous material (DMM 601.10.5). Anyone who mails, or causes to be mailed, a nonmailable or improperly packaged hazardous material can be subject to legal penalties (i.e., fines and/or imprisonment), including but not limited to, those specified in 18 U.S.C. The transport of hazardous materials prior to entry as U.S. Mail and after receipt from the Postal Service is subject to DOT regulations.

### 324 Mailability Rulings

For information on how to request a mailability ruling for a specific hazardous material, see 215.2 and DMM 601.10.6.

### 325 DOT Hazardous Materials Warning Labels

In commerce, packages containing hazardous materials (except those qualifying as ORM-D material or a limited quantity shipment) must display the appropriate DOT diamond-shaped hazardous materials warning label. Any mailpiece bearing, or required under 49 CFR to bear, one of the warning labels shown in [Exhibit 325a](#) is prohibited from mailing. The warning labels shown in Exhibit 325b may appear only on mailpieces containing mailable hazardous materials that require use of the label under Postal Service requirements.

(The labels shown in the exhibits are not shown to size. DOT warning labels must meet the size and color requirements in 49 CFR 172.407 through 172.446.)

Exhibit 325a

**DOT Hazardous Materials Warning Labels: PROHIBITED IN THE MAIL**

\*Include appropriate  
division number and  
compatibility group letter.



\*Include appropriate  
compatibility group letter.



\*Include appropriate  
compatibility group letter.



\*Include appropriate  
compatibility group letter.



(except for dry ice only)

## Exhibit 325b

**DOT Hazardous Materials Warning Labels: PERMITTED ON MAILABLE HAZARDOUS MATERIALS**326 **Shipping Papers**

A shipping paper is defined as a shipping order, bill of lading, waybill, manifest, or any other document used to identify a hazardous material being offered for transport. The requirements on how to properly prepare shipping papers are detailed in 49 CFR 172.200 through 172.204. The shipping paper must be affixed to the outside of the mailpiece. A plastic envelope or carrier can be used for this purpose. The following conditions also apply:

- a. *Air Transportation.* Most mailable hazardous materials (including ORM-D materials) must be accompanied by a shipper's declaration for dangerous goods (shipping paper). The document must be properly completed and signed in triplicate by the mailer. A sample form is shown in [Exhibit 326](#). To determine which mailable hazardous materials require a shipping paper when sent via air transportation, refer to the appropriate sections in this chapter, the appropriate Packaging Instruction in Appendix C, and DMM 601.10.
- b. *Surface Transportation.* Certain mailable hazardous material other than an ORM-D material may require a properly prepared shipping paper. To determine which mailable hazardous materials require a shipping paper when sent via surface transportation, refer to the appropriate sections in this chapter, the appropriate Packaging Instruction in Appendix C, and DMM 601.10.

Neither DOT nor the Postal Service makes blank shipper's declaration forms available to shippers of hazardous materials. It is the responsibility of the shipper to obtain forms meeting the format specifications in 49 CFR from commercial printers, vendors, or internet retailers. The shipper is also responsible for properly completing the form prior to mailing.

## Exhibit 326

## Shipper's Declaration for Dangerous Goods (Sample Form)

SHIPPER'S DECLARATION FOR DANGEROUS GOODS					(Provide at least two copies to the airline.)				
Shipper			Air Waybill No.						
Consignee			Page      of      Pages Shipper's Reference Number <small>(optional)</small>						
<i>Two completed and signed copies of this Declaration must be handed to the operator</i>			<b>WARNING</b> Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.						
<b>TRANSPORT DETAILS</b> This shipment is within the limitations prescribed for: <i>(delete non-applicable)</i>			Airport of Departure						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">PASSENGER AND CARGO AIRCRAFT</td> <td style="padding: 2px;">CARGO AIRCRAFT ONLY</td> </tr> </table>			PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY	Airport of Destination:				
PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY								
Shipment type: <i>(delete non-applicable)</i> <input type="checkbox"/> NON-RADIOACTIVE <input type="checkbox"/> RADIOACTIVE									
<b>NATURE AND QUANTITY OF DANGEROUS GOODS</b>									
<b>Dangerous Goods Identification</b>									
Proper Shipping Name	Class or Division	UN or ID No.	Packing Group	Subsidiary Risk	Quantity and Type of packing	Packing Inst.	Authorization		
Additional Handling Information									
24 hr. Emergency Contact Tel. No. _____									
<b>I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.</b>					Name/Title of Signatory  Place and Date  Signature <small>(see warning above)</small>				

## 327 Transportation Requirements

### 327.1 General

- a. *Air Transportation.* Mailable hazardous materials eligible for air transportation must be sent as Express Mail, Priority Mail, or First-Class Mail, as permitted. Mailpieces must be prepared to meet all requirements that apply to air transportation. Mailpieces must be properly packaged and labeled within DMM requirements and the operator variations of the air carrier. When required, a shipper's declaration for dangerous goods must be affixed to the outside of the mailpiece. Refer to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* of the International Civil Aviation Organization (ICAO) for air carrier operator variations.

**Note:** Mailable hazardous materials that are prohibited from air transportation may not be sent at Express Mail, Priority Mail, or First-Class Mail rates.

- b. *Surface Transportation.* All mailable hazardous materials eligible to be sent at Standard Mail rates must be prepared under the requirements that apply to surface transportation. A mailpiece containing mailable hazardous material with postage paid at a Standard Mail rate must not, under any circumstance, be transported on air transportation.

### 327.2 Air Transportation Prohibitions

The following types of hazardous materials are prohibited from transport via aircraft (i.e., at Express Mail, Priority Mail, or First-Class Mail rates) under any circumstances:

- a. Explosives other than Division 1.4S, small rocket motors, igniters, and safety fuse.
- b. Anything susceptible to damage or that can become harmful because of changes in temperature or atmospheric pressures unless protected against the effects of such changes.
- c. Magnetic material that has a field strength sufficient to cause a compass deviation at a distance of 7 feet or more from any point on the outer packaging.
- d. Flammable materials (gases, liquids, and solids).
- e. Radioactive materials.
- f. Hazardous materials excluded from air shipment by the regulations of 49 CFR 100–185, or by the applicable country or air carrier operator variations.

## 328 Postal Service Hazardous Materials Table

Appendix A, "Hazardous Materials Table: Postal Service Mailability Guide," contains a modified version of the DOT Hazardous Materials Table found in 49 CFR 172.101. Appendix A lists the hazardous materials from 49 CFR and

identifies eligibility for mailing in the domestic mail via air and surface transportation. The table can be used to determine the mailability of a hazardous material if the proper shipping name of the material is known. When only the UN number is known, Appendix B, "Numerical Listing of Proper Shipping Names by Identification (ID) Number," can be used to locate a proper shipping name for cross referencing back to Appendix A.

The mailability information in Appendix A is based on DMM 601.10, the guidelines in this publication, and past Postal Service mailability rulings. The table does not include specific information for international mail because almost all hazardous materials are prohibited in international mail. See [Chapter 6](#) for the specific requirements that apply to international mail.

## 33 Hazard Classes

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### 331 **Nine Classes**

Every hazardous material is assigned to one of nine hazard classes as defined in 49 CFR 172.101 and 173. The nine hazard classes are as follows:

- a. Class 1: Explosives.
- b. Class 2: Gases.
- c. Class 3: Flammable and Combustible Liquids.
- d. Class 4: Flammable Solids.
- e. Class 5: Oxidizing Substances, Organic Peroxides.
- f. Class 6: Toxic Substances and Infectious Substances.
- g. Class 7: Radioactive Materials.
- h. Class 8: Corrosives.
- i. Class 9: Miscellaneous Hazardous Materials.

Some of the nine classes are further separated into divisions based on their physical or chemical properties, as shown in [Exhibit 331](#).

Exhibit 331 (p. 1)

**DOT Hazard Classes and Postal Mailability**

Class	Name of Hazard Class (and Division when applicable)	Domestic Mail		International Mail and APO/FPO Mail
		Air Transportation	Surface Transportation	
<b>1</b>	<b>Explosives</b>			
	Division 1.1: Mass Explosive Hazard	Prohibited	Prohibited	Prohibited
	Division 1.2: Projection Hazard	Prohibited	Prohibited	Prohibited
	Division 1.3: Fire and/or Minor Blast/Minor Projection Hazard	Prohibited	Prohibited	Prohibited
	Division 1.4: Minor Explosion Hazard	Prohibited	Only with prior HQ approval per 341	Prohibited
	Division 1.5: Very Insensitive With Mass Explosion Hazard	Prohibited	Prohibited	Prohibited
	Division 1.6: Extremely Insensitive; No Mass Explosion Hazard	Prohibited	Prohibited	Prohibited
<b>2</b>	<b>Gases</b>			
	Division 2.1: Flammable Gases	Prohibited	Only ORM-D material per 342	Prohibited
	Division 2.2: Nonflammable Gases	Only ORM-D material per 342	Only ORM-D material per 342	Prohibited
	Division 2.3: Toxic Gases	Prohibited	Prohibited	Prohibited
<b>3</b>	<b>Flammable and Combustible Liquids</b>			
	All Flammable Liquids	Prohibited	Only ORM-D material per 343	Prohibited
	All Combustible Liquids	Only ORM-D material per 343	Only ORM-D material per 343	Prohibited
<b>4</b>	<b>Flammable Solids</b>			
	Division 4.1: Flammable Solids	Prohibited	Only ORM-D material per 344	Prohibited
	Division 4.2: Spontaneously Combustible	Prohibited	Only ORM-D material per 344	Prohibited
	Division 4.3: Dangerous When Wet	Prohibited	Only ORM-D material per 344	Prohibited
<b>5</b>	<b>Oxidizing Substances, Organic Peroxides</b>			
	Division 5.1: Oxidizing Substances	Only ORM-D material per 345	Only ORM-D material per 345	Prohibited
	Division 5.2: Organic Peroxides	Only ORM-D material per 345	Only ORM-D material per 345	Prohibited
<b>6</b>	<b>Toxic Substances and Infectious Substances</b>			
	Division 6.1: Toxic Substances	ORM-D material per 346; other poisons as permitted in 346.231	ORM-D material per 346; other poisons as permitted in 346.231	Prohibited
	Division 6.2: Infectious Substances	Only as permitted in 346	Only as permitted in 346	Only registered air letters per 622

Exhibit 331 (p. 2)

**DOT Hazard Classes and Postal Mailability**

Class	Name of Hazard Class (and Division when applicable)	Domestic Mail		International Mail and APO/FPO Mail
		Air Transportation	Surface Transportation	
7	Radioactive Material	Prohibited	Only per 347	Only registered air letters per 622
8	Corrosives (Liquids And Solids)	Only ORM-D material per 348	Only ORM-D material per 348	Prohibited
9	Miscellaneous Hazardous Materials	ORM-D material and other materials as permitted in 349	ORM-D material and other materials as permitted in 349	Prohibited, except for magnetized materials per 349 and 622.4

**332 Limited Quantity**

A *limited quantity* of a hazardous material is the maximum amount of a specific hazardous material exempted from DOT labeling or packaging requirements in 49 CFR. To be eligible to be shipped under DOT's limited quantity provision, a hazardous material must be authorized an exemption in column 8A of the Hazardous Materials Table in 49 CFR 172.101. *Not every hazardous material is eligible to be shipped as a limited quantity.*

Under Postal Service standards, a material meeting the eligibility criteria for shipment as a limited quantity is mailable only if it can be further reclassified as an ORM-D material (see 333). Not every hazardous material permitted to be shipped as a limited quantity can qualify as an ORM-D material.

Except as specifically permitted in DMM 601.10 and this publication, materials that cannot be reclassified as an ORM-D material are not eligible for mailing.

**333 ORM-D Materials**

Some of the hazardous materials that qualify under the limited quantity provision are permitted a further exemption in 49 CFR 172.101 (column 8A) to be reclassified as an ORM-D material under 49 CFR 173.144 and renamed with the proper shipping name "Consumer Commodity," which is defined in Appendix D. A mailable ORM-D material is additionally subject to the mailability and quantity limits in DMM 601.10 and this publication, as applicable.

Most mailable hazardous materials fall within the ORM-D category. ORM-D materials present the lowest level of risk during transportation. The ORM-D category is unique to the United States. Its use is prohibited with international shipments of hazardous materials.

It is the responsibility of the mailer to know the correct hazard class of a hazardous material before mailing (see 323).

When assistance is needed to determine eligibility for mailing, the mailer may request a ruling from the PCSC (see 215.2 and DMM 601.10.6).

## 334 Small Quantity

### 334.1 Definition

A *small quantity* is the maximum amount of a specific hazardous material that is not subject to any DOT requirements (e.g., packaging, marking, labeling) other than those in 49 CFR 173.4. *Not every hazardous material is eligible to be shipped as a small quantity.* Additionally, for Postal Service purposes, Class 7 materials are not permitted to be sent as a small quantity.

The DOT small quantity provision, like the DOT ORM-D category, is unique to the United States. Its use is prohibited with international shipments of hazardous materials and cannot be used in international mail.

### 334.2 Mailability

Hazardous materials in Class 3, Division 4.1, Division 4.2 (Packing Groups II and III only), Division 4.3 (Packing Groups II and III only), Division 5.1, Division 5.2, Division 6.1 (Packing Groups II and III only), Class 8, and Class 9 are eligible to be sent in the domestic mail under the small quantity provision only when each primary receptacle is limited to the following quantity, as applicable:

- a. 30 ml (1 oz) or less for liquids other than Division 6.1 (Packing Group I) materials.
- b. 30 g (1 oz) or less for solids other than Division 6.1 (Packing Group I) materials.
- c. 1 g (0.04 oz) or less for Division 6.1 (Packing Group I) materials.

### 334.3 Packaging and Marking

Hazardous materials eligible to be shipped under the small quantity provision permitted in 49 CFR and 334.2 must be prepared following [Packaging Instruction 10A](#) in Appendix C. Each mailpiece that qualifies to be sent under the small quantity provision must be clearly marked on the address side with the following words: "This package conforms to 49 CFR 173.4."

## 335 Packaging Requirements for Hazardous Materials

### 335.1 DOT Packing Groups

Hazardous materials in Classes 1, 3–6, and 8–9 are assigned to a DOT packing group based on the degree of danger presented by the material during transport. The packing group assigned to a hazardous material is listed in column 5 of the Hazardous Material Table in 49 CFR 172.101 and in column (d) of Appendix A. Packing Group I indicates a great danger, Packing Group II a medium danger, and Packing Group III a minor danger.

**335.2 Postal Service Packaging Instructions**

For mailing purposes, the packaging of a mailable hazardous material must follow the appropriate Packaging Instruction in Appendix C. The correct Packaging Instruction to use for a specific hazardous material can be determined using Appendix A.

Mailers may not package or combine hazardous materials assigned to different hazard classes within a single mailpiece unless permitted by Postal Service standard.

**336 Nonmailable Materials Found in the Mailstream**

When any mailpiece containing a nonmailable hazardous material is found in the mailstream, the procedures in POM 139.117 must be followed if the materials present an immediate threat to persons or property. When there is not immediate threat to persons or property, follow the procedures in POM 139.118 and Management Instruction (MI) DM-601-05-1, *Hazardous Materials Acceptance and Handling*.

## 34 Mailability by Hazard Class

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**341 Explosives (Hazard Class 1)****341.1 Definition**

An *explosive* is any substance or article, including a device, that is designed to function by explosion (an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provisions in 49 CFR.

**341.11 Class 1 Divisions**

Hazard Class 1 has six divisions as follows:

- a. *Division 1.1* consists of explosives that have a mass explosion hazard. Examples are black powder, nitroglycerine (desensitized), dynamite, most types of torpedoes, and mercury fulminate.
- b. *Division 1.2* consists of explosives that have a projection hazard but not a mass explosion hazard. Examples are certain types of fireworks, some types of detonating fuses, and some types of ammunition.
- c. *Division 1.3* consists of explosives that have a fire hazard and either a minor blast or minor projection hazard or both, but not a mass explosion hazard. Examples are sodium picramate, some liquid and solid propellants, and some rocket motors.
- d. *Division 1.4* consists of explosives that present a minor blast hazard. Examples are common fireworks, toy caps, empty primed grenades, and some small arms ammunition.

- e. *Division 1.5* consists of very insensitive explosives that have a mass explosion hazard. Examples are type E blasting agents, some type B blasting agents, and very insensitive explosive substances.
- f. *Division 1.6* consists of extremely insensitive articles that do not have a mass explosion hazard.

### 341.12 **Class 1 Compatibility Codes**

Each division in Class 1 is further assigned a compatibility group code. The compatibility code consists of one letter (A–H, J–L, N, or S) that is positioned after the division number (e.g., 1.1A, 1.2C, 1.4S) and refers to the transportation and storage controls necessary to prevent potential hazards. See 49 CFR 173.52 for a more detailed description of the Class 1 compatibility codes.

### 341.2 **Mailability, Packaging, and Marking**

Explosives are generally prohibited from mailing under 18 U.S.C. 1716. The following conditions apply to the mailing of explosives:

- a. *International Mail.* All explosives are prohibited.
- b. *Domestic Mail via Air Transportation.* All explosives are prohibited.
- c. *Domestic Mail via Surface Transportation.* Generally, explosives are prohibited. The only exceptions are for Division 1.4S toy propellant devices and safety fuses that have been approved by the Manager, Mailing Standards, USPS Headquarters, Washington, DC prior to mailing as stated in 341.22 and DMM 601.10.11.2.

### 341.21 **Nonmailable Explosives**

Nonmailable explosives found in the mailstream must be immediately reported in accordance with POM 139.117.

Nonmailable explosives include, but are not limited to, the following:

- a. *Common Fireworks.* Fireworks are classified as Division 1.1, 1.2, 1.3, or 1.4 explosives depending on the degree of hazard. Fireworks include roman candles, skyrocketers, helicopter-type rockets, cylindrical and cone fountains, pyrotechnic wheels, illuminating torches, firecrackers, salutes, and combinations of items that are designed to produce any of the aforementioned types of effects. All types of fireworks are prohibited from mailing.
- b. *Fuses.* Fuses are classified as Division 1.3 or 1.4 explosives depending on the degree of hazard. All types of fuses (except safety fuses as permitted under 341.22) are prohibited from mailing.
- c. *Small Arms Ammunition.* Ammunition is classified as a Division 1.1, 1.2, 1.3, or 1.4 explosive, depending on the degree of hazard. Ammunition that is regulated as a Class 1 explosive and designed to be fired from a pistol, revolver, rifle, or shotgun, as well as associated primers and blank cartridges (including those designed for tools) and propellant powder for use in any firearm, is prohibited from mailing.

**341.22 Mailable Explosives**

The following specific types of explosives may be mailed only when the applicable conditions are met. Full responsibility rests with the mailer to comply with DOT and Bureau of Alcohol, Tobacco, and Firearms (ATF) regulations before mailing.

- a. *Toy Propellant Devices*. The proper shipping name for a toy propellant device is “model rocket motor” or “igniters.” A toy propellant device assigned UN0454 or NA0323 and classed as a Division 1.4S explosive is eligible for mailing in domestic mail via surface transportation only when prior written permission has been obtained from the Manager, Mailing Standards, USPS Headquarters, Washington, DC. A device approved for mailing is subject to the following conditions:
  - (1) Each device must be ignitable by electrical means only; contain no more than 30 g (1.07 oz) of propellant; and produce less than 80 newton seconds of total impulse with thrust duration not less than 0.050 second.
  - (2) Each device must be constructed so that all chemical ingredients are preloaded into a cylindrical paper or similarly constructed nonmetallic tube that does not fragment into sharp, hard pieces; must be designed so that it will not burst under normal conditions of use; must be incapable of spontaneous ignition under 500° F; and must not contain any type of explosive or pyrotechnic warhead other than a small, activation-charge, parachute-recovery system.
  - (3) Each mailpiece containing approved devices must be prepared for mailing following [Packaging Instruction 1A](#) in Appendix C. A shipper’s declaration for dangerous goods is required.
- b. *Safety Fuses (UN0105)*. Safety fuses consist of a core of black powder over-spun with yarns, waterproofing compounds, and/or tapes. Safety fuses assigned UN0105 as a Division 1.4S explosive may be mailed in domestic mail via surface transportation only when prior written approval has been granted by the Manager, Mailing Standards, USPS Headquarters, Washington, DC. Mailable safety fuses must be prepared using [Packaging Instruction 1B](#) in Appendix C. A shipper’s declaration for dangerous goods is required.

**Note:** “Safety Fuses” are not to be confused with “fusees.” Fusees are rail and highway distress signals that are nonmailable Class 4 flammable solids.
- c. *Shotgun Hulls, Empty Casings, Nonmetallic Shotgun Hulls, or Casings Without Primers*. These articles are not classified as explosives or hazardous materials under 49 CFR and, therefore, are mailable subject to the applicable mailing rules (see 227).

## 342 Gases (Hazard Class 2)

### 342.1 Definition

Hazard Class 2 consists of three divisions:

- a. *Division 2.1, Flammable Gases.* A material that is a gas at 68° F (20° C) or less and 14.7 psi (101.3 kPa) of pressure. Flammable gases also include materials that have a boiling point of 68° F (20° C) or less at 14.7 psi (101.3 kPa) and that are ignitable at 14.7 psi (101.3 kPa) when in a mixture of 13 percent or less by volume with air or that have a flammable range at 14.7 psi (101.3 kPa) with air of at least 12 percent regardless of the lower limit. These conditions must be established in accordance with ASTM E681–85, *Standard Test Method for Concentration Limits of Flammability of Chemicals*, or other approved equivalent method. The flammability of aerosols must be determined using the tests specified in 49 CFR 173.306(i).
- b. *Division 2.2, Nonflammable, Nontoxic Gases.* A material that does not meet the definition of Division 2.1 or 2.3 and exerts in its packaging an absolute pressure of 40.6 psia (280 kPa) or greater at 68° F (20° C).
- c. *Division 2.3, Toxic Gases.* A material that is poisonous by inhalation and is a gas at 68° F (20° C) or less and a pressure of 14.7 psi (101.3 kPa), or a material that has a boiling point of 68° F (20° C) or less at 14.7 psi (101.3 kPa).

### 342.2 Mailability

The following conditions apply to the mailing of gases:

- a. *International Mail.* All gases are prohibited.
- b. *Domestic Mail via Air Transportation.* Flammable gases in Division 2.1 and toxic gases in Division 2.3 are prohibited. Nonflammable gases in Division 2.2 are generally permitted if the material can qualify as an ORM-D material and meet the quantity limitations and packaging requirements in 342.3 and 342.4.
- c. *Domestic Mail via Surface Transportation.* Toxic gases in Division 2.3 are prohibited. Flammable gases in Division 2.1 and nonflammable gases in Division 2.2 are generally permitted if the material can qualify as an ORM-D material and meet the quantity limitations and packaging requirements in 342.3 and 342.4.

### 342.21 Nonmailable Gases

When any gas that is nonmailable is discovered in the mailstream, the procedures in DM-601-05-1, *Hazardous Materials Acceptance and Handling*, must be followed if the materials present an immediate threat to persons or property. The procedures in POM 139.118 are followed when there is no immediate threat to persons or property.

The following are some specific types of nonmailable gases:

- a. *Cigarette Lighters (NA1226).* Generally, lighters charged with fuel and having an ignition system or any similar heating, lighting, or ignition

device are a Class 3 flammable liquid and are nonmailable. However, if an approval number is obtained from DOT, consideration for mailing may be requested from the PCSC manager under the provisions in 343.25 and DMM 601.10.13.4.

- b. *Oxygen, Refrigerated Liquid*. Liquid oxygen (UN1073) is prohibited from mailing under any circumstances.
- c. *Fire Extinguishers*. The following types of fire extinguishers are prohibited from mailing:
  - (1) Fire extinguishers (UN0275, UN0276, UN0323, or UN0381) that contain propellant explosives.

**Note:** See 342.22 for mailable types of fire extinguishers.

- d. *Toxic Gases*. All Division 2.3 toxic gases are prohibited from mailing.

#### 342.22 Mailable Gases

The following are examples of mailable gases:

- a. *Butane*. Butane (UN1011) and Receptacles, small (UN2037) with butane or butane mixtures are Division 2.1 flammable gases. Butane gases that can qualify as ORM-D materials are acceptable only in domestic mail via surface transportation when properly prepared under 342.3 and [Packaging Instruction 2A](#) in Appendix C.
- b. *Oxygen, Compressed*. Oxygen (UN1072) is a Division 2.2 nonflammable gas and is acceptable in domestic mail only if it can be reclassified as an ORM-D material. The requirements in 342.3 and [Packaging Instruction 2C](#) in Appendix C must be followed.
- c. *Propane*. Propane is a Division 2.1 flammable gas and is acceptable in domestic mail via surface transportation only if it can be reclassified as an ORM-D material. The requirements in 342.3 and [Packaging Instruction 2A](#) in Appendix C must be followed. Propane is nonmailable in domestic mail via air transportation.
- d. *Fire Extinguishers*. Extinguishers that contain a Division 2.2 nonflammable compressed gas and are assigned UN1044 are mailable if they do not contain methyl bromide gas mixtures and the contents are held in DOT specification 2P or 2Q containers. Only one extinguisher per mailpiece is permitted, and the compressed gas contained within the fire extinguisher must be nonflammable, nonpoisonous, or noncorrosive as required under 49 CFR 173.309(a). The requirements in [Packaging Instruction 2B](#) in Appendix C must be followed.

**Note:** Fire extinguishers assigned UN1774 are mailable as Class 8 corrosives subject to the limitations for corrosives in 348 and DMM 601.10.19.
- e. *Empty Compressed Gas Containers*. Empty used containers of compressed gas are mailable subject to the same restrictions that applied when the container was filled (because residual amounts of the hazardous material might remain present). Empty, unused (i.e., new) containers are mailable without restriction.

- f. *Aerosol Paint Products.* Aerosol paint products that are defined as flammable compressed gases are acceptable in the domestic mail via surface transportation only if they can qualify as ORM-D materials and meet the quantity limitations and applicable packaging requirements in 342.3, 342.4, and DMM 601.10.12.
- g. *Other Mailable Gases.* Materials whose contents are under pressure, such as carbonated beverages, biological/medical products, cosmetics, foodstuffs and soaps, electronic tubes, and audible fire alarm systems (except for any that may contain poisonous gases or others that may be specifically excluded by 49 CFR 173.306), are acceptable in the domestic mail as follows:
  - (1) *Carbonated Beverages.* These items are not regulated as hazardous materials and are acceptable without restriction. Carbonated beverages must be properly packaged under DMM 601.1 through 601.8.
  - (2) *Biological Products or Medical Preparations.* A product or preparation in a nonrefillable metal primary receptacle charged with a nonflammable solution (containing a biological product or a medical preparation that heat could deteriorate) may be accepted for domestic surface mail only, provided the conditions in [Packaging Instruction 2F](#) in Appendix C are followed.
  - (3) *Foodstuffs and Soaps.* These materials are mailable provided the conditions in [Packaging Instruction 2D](#) in Appendix C are met.
  - (4) *Electronic Tubes.* These materials are mailable without restriction if the volume is 30 cubic inches or less and the tube is charged with gas to a pressure of 35 psig or less. Such tubes must be packed in a strong outer container and meet the general packaging requirements in DMM 601.1 through 601.8.
  - (5) *Audible Fire Alarm Systems.* An audible fire alarm system powered by a compressed gas is acceptable in the domestic mail via surface transportation provided the conditions in [Packaging Instruction 2E](#) in Appendix C are followed.

### 342.3 Packaging

Mailable compressed gases must be packaged to protect valves and fittings and to ensure integrity of the primary receptacle during transport. Containers must use recessed valves, screw thread caps, tap closures, or other means to prevent accidental discharge.

The following conditions apply:

- a. *Nonmetal Containers.* A mailable gas is acceptable in an other-than-metal primary receptacle if the water capacity is 4 fluid ounces (7.22 cubic inches) or less. [Packaging Instruction 2A](#) or [2B](#), as applicable, must be followed.
- b. *Metal Containers.* Mailable nonflammable and flammable compressed gases are acceptable in metal primary receptacles that have a water capacity up to 33.8 fluid ounces (1 liter or 61.0 cubic inches). The liquid

content of the material and the gas must not completely fill the primary receptacle at 130° F (55° C). Additionally, the following apply:

- (1) A DOT 2P container must be used if the internal pressure is from 140 psig to 160 psig at 130° F (55° C).
  - (2) A DOT 2Q container must be used if the pressure is from 161 psig to 180 psig at 130° F (55° C).
  - (3) A container with an internal pressure over 180 psig at 130° F (55° C) is prohibited from mailing.
  - (4) [Packaging Instruction 2A](#) or [2B](#), as applicable, must be followed.
- c. *Flammable Gases*. A mailable flammable compressed gas is restricted to 4 fluid ounces in a nonmetal primary receptacle or 33.8 fluid ounces (1 liter) in a metal primary receptacle per mailpiece [Packaging Instruction 2A](#) must be followed.
- d. *Nonflammable Gases*. A mailable nonflammable gas is permitted in individual 4 fluid ounce nonmetal primary receptacles or 33.8 fluid ounce (1 liter) metal primary receptacles. Multiple primary receptacles may be securely packed within a single, strong outer packaging. Each mailpiece must not exceed a total weight of 25 pounds. [Packaging Instruction 2B](#) must be followed.

#### 342.4 **Marking and Documentation**

For air transportation, parcels containing mailable gases must be plainly and durably marked on the address side with “ORM-D AIR” immediately following or below the proper shipping name (e.g., Consumer Commodity). A properly completed shipper’s declaration for dangerous goods prepared in triplicate must be affixed to the outside of the mailpiece.

For surface transportation, parcels containing mailable gases must be plainly and durably marked on the address side with “Surface Only” or “Surface Mail Only” and “ORM-D,” immediately following or below the proper shipping name (e.g., Consumer Commodity). A shipper’s declaration for dangerous goods is not required for mailable gases sent via surface transportation.

#### 342.5 **Mailability Rulings**

In addition to the information required in 215.2 and DMM 601.10.6, requests for mailability rulings on gases and products containing compressed gases need to include the following information:

- a. Documentation indicating whether or not the contents are a flammable mixture when dispersed.
- b. The internal pressure within the primary receptacle at 70° F (21° C) and 130° F (55° C).
- c. Documentation as to whether or not the liquid contents completely fill the container at 70° F (21° C) and 130° F (55° C).
- d. The bursting strength of the primary receptacle.
- e. The capacity of the primary receptacle and the number of primary receptacles proposed to be packed within a single mailpiece.

- f. The design methods intended to prevent accidental discharge of the contents.

## 343 Flammable and Combustible Liquids (Hazard Class 3)

### 343.1 Definition

The terms used in the standards that apply to Hazard Class 3 are defined as follows:

- a. *Flammable Liquid* means a liquid that has a flashpoint of not more than 141° F (60.5° C), or any material in a liquid phase that has a flashpoint at or above 100° F (38° C).
- b. *Combustible Liquid* means any liquid that does not meet the definition of any other hazard class and has a flashpoint above 141° F (60.5° C) and below 200° F (93° C). A flammable liquid with a flashpoint at or above 100° F (38° C) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid per 49 CFR 173.120(b).

**Note:** A liquid with a flashpoint above 200° F (93° C) is not regulated as a hazardous material and may be mailed subject to the general packaging requirements in DMM 601.1 through 601.8, provided it possesses no characteristics of another hazard class.

### 343.2 Mailability and Packaging

#### 343.21 Requirements for Flammable Liquids

The following conditions apply:

- a. *International Mail.* Flammable liquid is prohibited.
- b. *Domestic Mail via Air Transportation.* Flammable liquid is prohibited.
- c. *Domestic Mail via Surface Transportation.* Flammable liquid with a flashpoint of 20° F (-7° C) or below is prohibited. Other flammable liquid is permitted if the material can qualify as an ORM-D material and meet the criteria in Exhibit 343.21. A mailable flammable liquid must be prepared according to [Packaging Instruction 3A](#) in Appendix C, as applicable.

## Exhibit 343.21

**Flammable Liquids**

<b>Flashpoint</b>	<b>Mailability</b>
20° F (-7° C) or below	Not acceptable for mailing.
Above 20° F (-7° C) but not more than 73° F (23° C)	Acceptable (with restrictions) for domestic mail via surface transportation only. Follow requirements for <a href="#">Packaging Instruction 3A</a> in Appendix C, as applicable.
Above 73° F (23° C) but less than 100° F (38° C)	Acceptable (with restrictions) for domestic mail via surface transportation only. Follow requirements for <a href="#">Packaging Instruction 3A</a> in Appendix C, as applicable.
100° F (38° C) and up to 141° F (60.5° C)	Acceptable (with restrictions) for domestic mail via surface transportation only. Follow requirements for <a href="#">Packaging Instruction 3A</a> or <a href="#">3B</a> in Appendix C, as applicable.  <b>Note:</b> If the flashpoint is between 100° F (38° C) and 141° F (60.5° C), the liquid may be eligible to be reclassified as a combustible liquid.
Over 141° F (60.5° C)	See combustible liquids in 343.22. Follow requirements for <a href="#">Packaging Instruction 3A</a> in Appendix C.

343.22 **Requirements for Combustible Liquids**

The following conditions apply:

- a. *International Mail.* Combustible liquid is prohibited.
- b. *Domestic Mail via Air Transportation.* Combustible liquid is permitted if the material can qualify as an ORM-D material and meet the criteria in [Exhibit 343.22. Packaging Instruction 3B](#) in Appendix C must be followed, as applicable.
- c. *Domestic Mail via Surface Transportation.* Combustible liquid is permitted if the material can qualify as an ORM-D material and meet the criteria in [Exhibit 343.22. Packaging Instruction 3B](#) in Appendix C must be followed, as applicable.

## Exhibit 343.22

**Combustible Liquids**

Flashpoint	Mailability
Below 100° F (38° C)	Not a combustible liquid. See flammable liquids in 343.21.
100° F (38° C) but not more than 141° F (60.5° C)	A flammable liquid that may be eligible to be reclassified as a combustible liquid under 49 CFR 173.120(b). See 343.1. Acceptable (with restrictions) in domestic mail via surface transportation only. Follow requirements for <a href="#">Packaging Instruction 3B</a> in Appendix C, as applicable.
Above 141° F (60.5° C) but not more than 200° F (93° C)	Acceptable (with restrictions) for domestic mail via air transportation or surface transportation. Follow requirements for <a href="#">Packaging Instruction 3B</a> in Appendix C, as applicable.

343.23 **Nonmailable Flammable and Combustible Liquids**

When flammable liquids and combustible liquids that are nonmailable under 343.21 or 343.22 and DMM 601.10.13. are found in the mailstream, the procedures in POM 139.117 must be followed if the materials present an immediate threat to persons or property. When there is no immediate threat to persons or property, follow the procedures in POM 139.118.

The following materials are nonmailable:

- All flammable liquids having a flashpoint of 20° F (-7° C) or below are prohibited from mailing.
- Gasoline* (UN1203) is a flammable liquid that normally has a flashpoint of -50° F. Gasoline is nonmailable under any circumstances.

343.24 **Mailable Flammable and Combustible Liquids**

The following are mailable:

- Paint* or a related item (UN1263) classified as a flammable or combustible liquid is generally acceptable for mailing provided the material can qualify as an ORM-D material and is sent within the quantity limitations and packaging requirements stated in 343.21 or 343.22, as applicable. Also see 343.26. Mailpieces must be prepared following [Packaging Instruction 3A](#) or [3B](#) in Appendix C, as applicable.
- Latex Paint* or a similar water-based paint product that is not flammable or combustible is not regulated as a hazardous material, and therefore is not restricted. Also see 343.26. Mailpieces must be properly packaged under DMM 601.1 through 601.8.
- Canned Heat (Sterno)* is a flammable liquid that normally has a flashpoint from 40° F (4° C) to 80° F (27° C). It is permitted only in domestic mail via surface transportation provided the liquid can qualify as an ORM-D material and is sent within the quantity limitations and packaging requirements stated in 343.21. Mailpieces must be prepared following [Packaging Instruction 3A](#) in Appendix C.

- d. *Cigarette Lighter Fluid* is a flammable liquid that normally has a flashpoint between 20° F (-7° C) and 55° F (13° C). It is permitted only in domestic mail via surface transportation provided the fluid can qualify as an ORM-D material and is sent within the conditions of 343.21. Mailpieces must be prepared following [Packaging Instruction 3A](#) in Appendix C.
- e. *Diesel Fuel* (NA1993) is a combustible liquid that normally has a flashpoint between 110° F (43° C) and 190° F (88° C). It is acceptable for mailing provided the fluid can qualify as an ORM-D material and the liquid is sent within the conditions in 343.22. Mailpieces must be prepared following [Packaging Instruction 3B](#) in Appendix C.
- f. *Fuel Oil* (NA1993) is a flammable liquid that normally has a flashpoint below 100° F (38° C). The specific flashpoint must be accurately identified by the mailer before a mailability determination can be made. Fuel oil is acceptable in the domestic mail via surface transportation only, provided the liquid can qualify as an ORM-D material and is sent within the conditions of 343.21 or 343.22, as applicable. Mailpieces must be prepared following [Packaging Instruction 3A](#) in Appendix C.
- g. *Adhesives and Cements* (UN1133) that are classified as flammable or combustible liquids are mailable only if the material can qualify as an ORM-D material and the applicable conditions in 343.21 or 343.22 are met. Mailpieces must be prepared following [Packaging Instruction 3A](#) or [3B](#) in Appendix C, as applicable.

**Note:** Some adhesives and cements are extremely toxic and may be classified as Division 6.1 toxic substances. Division 6.1 materials are mailable only as permitted in 346.21.

- h. *Cleaning Agents and Solvents* that are classified as flammable liquids are mailable only if the material can qualify as an ORM-D material and the applicable conditions in 343.21 can be met. Mailpieces must be prepared following [Packaging Instruction 3A](#) in Appendix C.
- Note:** Some cleaning agents and solvents are extremely toxic or corrosive and may be classified as either a Division 6.1 toxic substance or a Class 8 corrosive. Division 6.1 toxic materials and Class 8 corrosives are permitted only within the conditions of 346.21 and 348.2, respectively.

- i. *Model Fuel* (for glow-plug engines) is a flammable liquid that has a flashpoint ranging from 65° F to 75° F. It is acceptable only in the domestic mail via surface transportation, provided the material can qualify as an ORM-D material and the applicable conditions in 343.21 are met. Mailpieces must be prepared following [Packaging Instruction 3A](#) in Appendix C.
- j. *Waxes and Polishes* have a wide range of flashpoints. The flashpoint and toxicity must be accurately identified by the mailer before mailability can be determined. Any waxes or polishes that are flammable or combustible liquids are permitted to be mailed, provided the material can qualify as an ORM-D material and the applicable conditions in 343.21 and 343.22 are met. Mailpieces must be prepared following [Packaging Instruction 3A](#) or [3B](#) in Appendix C, as applicable.

**343.25 Cigarette Lighters**

A cigarette lighter equipped with an ignition element and containing fuel is classified as a Class 3 flammable liquid. A cigarette lighter containing a flammable gas is classed as a Division 2.1 flammable gas. A cigarette lighter that contains either flammable liquid or flammable gas is permitted only in the domestic mail via surface transportation with prior written approval and within these conditions:

- a. The design of the lighter and its packaging are approved by the DOT Associate Administrator for Hazardous Materials Safety, per 49 CFR 173.21 (i) and 173.308, and a DOT Approval Number (T-Number) is issued.
- b. The prospective mailer of the lighter submits to the PCSC manager a written request for authorization to mail the lighter, accompanied by a legible photocopy of the official DOT notice conveying the approval described in 343.25a, along with a specimen of the actual lighter, the packaging materials in which each lighter is to be mailed, and the number of mailpieces and mailing location; the mailer receives from the PCSC manager a letter approving the requested authorization for mailing.
- c. The packaging must be designed to protect the lighter's sparking mechanism from accidental ignition caused by friction or external pressure during transport. [Packaging Instruction 3C](#) in Appendix C must be followed.
- d. When presented for mailing, the address side of the mailpiece must prominently display the proper shipping name "Lighter(s)" or "Lighter(s) for Cigarette" followed by the T-Number and the marking "Surface Only" or "Surface Mail Only," all preparation and packaging requirements in the PCSC manager's approval letter must be met. A legible photocopy of the PCSC manager's approval must accompany the mailing at the time of deposit.
- e. A shipper's declaration for dangerous goods is not required.

**343.26 Paints, Paint-Related Materials, and Inks**

The following definitions apply:

- a. *Paint* (UN1263) is the proper shipping name and description for paint, lacquer, enamel, stain, shellac, varnish, liquid aluminum, liquid bronze, liquid gold, liquid wood filler, and liquid lacquer base. *Paint-related material* (UN1263) is the proper shipping name and description for a paint-thinning, paint-drying, paint-reducing, or paint-removing compound. See 343.24a and 343.24b for mailability.
- b. *Inks* are defined as colored liquids used for writing, drawing, etc., and liquids and pastes used in printing. Printing inks usually are mixtures of finely divided pigments, such as carbon black suspended in a drying oil. Inks having hazardous characteristics are generally classified as combustible or flammable liquids and areailable, provided they can qualify as an ORM-D material and meet the applicable requirements in 343.21 or 343.22. Mailpieces must be prepared using [Packaging](#)

[Instruction 3A](#) or [3B](#) in Appendix C, as applicable. In addition, the following conditions apply:

- (1) Regardless of the size or type of container, the primary receptacle(s) containing inks must be cushioned with sufficient absorbent material to take up all liquid contents in case of leakage.
- (2) The primary receptacle(s) and the absorbent cushioning material must be packed within a sealed, leakproof outer packaging.
- (3) Inks that are flammable or combustible liquids must meet the quantity restrictions, packaging requirements, and air or surface transportation conditions that apply under 343.2.

**Note:** Inks that do not possess any hazardous characteristics are not regulated as hazardous materials and are mailable if properly prepared under the requirements for packaging liquids in DMM 601.1 through 601.8.

### 343.3 Marking and Documentation

For air transportation, parcels containing mailable Class 3 materials must be plainly and durably marked on the address side with “ORM-D AIR” immediately following or below the proper shipping name (e.g., Consumer Commodity). A properly completed shipper’s declaration for dangerous goods prepared in triplicate must be affixed to the outside of the mailpiece.

For surface transportation, parcels containing mailable Class 3 materials must be plainly and durably marked on the address side with “Surface Mail” or “Surface Mail Only” and “ORM-D” immediately following or below the proper shipping name (i.e., consumer commodity). A shipper’s declaration for dangerous goods is not required for mailable Class 3 materials sent via surface transportation.

Cigarette lighters must be marked as specified in 343.25.

## 344 Flammable Solids (Hazard Class 4)

### 344.1 Definition

Hazard Class 4 consists of three divisions:

- a. *Division 4.1, Flammable Solids.* Any solid material other than one classed as an explosive that, under conditions normally incident to transportation, is likely to cause fires through friction or retained heat from manufacturing or processing, or that can be ignited readily and, when ignited, burns so vigorously and persistently as to create a serious transportation hazard.
- b. *Division 4.2, Spontaneously Combustible.* A liquid or solid pyrophoric material that even in small amounts and without an external ignition source can ignite within 5 minutes after coming in contact with air, or a self-heating material that when in contact with air and without an energy supply is liable to self heat.

- c. *Division 4.3, Dangerous When Wet.* A material that, by contact with water, is likely to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram of the material per hour.

Examples of flammable solids include certain metallic hydrides, metallic sodium and potassium, oily fabrics, processed metals, matches, and nitrocellulose products.

#### 344.2 **Mailability**

The following conditions apply:

- a. *International Mail.* All flammable solids are prohibited.
- b. *Domestic Mail via Air Transportation.* All flammable solids are prohibited.
- c. *Domestic Mail via Surface Transportation.* A flammable solid that can qualify as an ORM-D material is permitted.

#### 344.21 **Nonmailable Flammable Solids**

When flammable solids that are nonmailable under 344 and DMM 601.10.14 are found in the mailstream, the procedures in POM 139.117 must be followed, if the materials present an immediate threat to persons or property. When there is no immediate threat to persons or property, follow the procedures in POM 139.118.

Strike-anywhere matches are nonmailable in international mail and domestic mail. Safety matches (book, card, or strike-on-box) are nonmailable in international and domestic mail via air transportation.

#### 344.22 **Mailable Flammable Solids**

The following are mailable:

- a. Flammable solids that are eligible to be reclassified as ORM-D materials are permitted in the domestic mail via surface transportation.
- b. Safety matches (book, card, or strike-on-box) are permitted only in domestic mail via surface transportation.

#### 344.3 **Packaging, Marking, and Documentation**

The following conditions apply:

- a. *Mailable Flammable Solids.* The conditions in [Packaging Instruction 4A](#) in Appendix C must be followed. Mailpieces containing mailable Class 4 materials must be plainly and durably marked on the address side with “ORM-D” immediately following or below the proper shipping name (i.e., Consumer Commodity). A shipper’s declaration for dangerous goods is not required.
- b. *Safety Matches.* The conditions in [Packaging Instruction 4B](#) in Appendix C must be followed. Mailpieces must be plainly and durably marked on the address side with “Surface Only” or “Surface Mail Only” and, as applicable, “Book Matches,” “Strike-on-Card Matches,” or

“Card Matches.” A shipper’s declaration for dangerous goods is required.

## 345 **Oxidizing Substances, Organic Peroxides (Hazard Class 5)**

### 345.1 **Definition**

Hazard Class 5 consists of two divisions:

- a. *Division 5.1, Oxidizing Substances.* A material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.
- b. *Division 5.2, Organic Peroxides.* Any organic compound that contains oxygen in the bivalent structure and that may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.

Examples of Class 5 materials (not all of which are mailable) include ferric nitrate, hydrogen peroxide, lead perchlorate, lithium nitrate, organic peroxide solids or liquids, and some swimming-pool chemicals.

### 345.2 **Mailability**

The following conditions apply:

- a. *International Mail.* All oxidizing substances and organic peroxides are prohibited.
- b. *Domestic Mail via Air or Surface Transportation.* An oxidizing substance or an organic peroxide that can qualify as an ORM-D material is permitted.

### 345.21 **Nonmailable Class 5 Materials**

When nonmailable Class 5 materials are found in the mailstream, the procedures in POM 139.117 must be followed if the materials present an immediate threat to persons or property. The procedures in POM 139.118 are followed when there is no immediate threat to persons or property.

The following Class 5 materials are nonmailable:

- a. *Division 5.1, Oxidizing Substances.*
  - (1) Chlorine dioxide hydrate, frozen.
  - (2) Hydrogen peroxide solution (more than 20 percent).
  - (3) Perchloric acid.
  - (4) Potassium peroxide.
  - (5) Sodium chlorite.
  - (6) Tetranitromethane.
  - (7) Zinc ammonium nitrate.
- b. *Division 5.2, Organic Peroxides.* Organic peroxides are nonmailable unless they can qualify as ORM-D materials.

**345.22 Mailable Class 5 Materials**

The following Class 5 materials are mailable:

- a. *ORM-D Material*. A Division 5.1 or 5.2 material that can be reclassified as an ORM-D material is mailable within the requirements in 345.2b.
- b. *Hydrogen Peroxide*. There are no restrictions on Division 5.1 hydrogen peroxide solutions up to 8 percent. Solutions of hydrogen peroxide exceeding 8 percent and up to 20 percent are permitted if they can qualify as an ORM-D material.

**345.3 Packaging, Marking, and Documentation**

All mailable Division 5.1 and 5.2 materials must be prepared following the conditions for [Packaging Instruction 5A](#) in Appendix C.

For air transportation, a parcel containing a mailable Division 5.1 or 5.2 material must be plainly and durably marked on the address side with “ORM-D AIR” immediately following or below the proper shipping name (e.g., Consumer Commodity). A properly completed shipper’s declaration for dangerous goods prepared in triplicate must be affixed to the outside of the mailpiece.

For surface transportation, a parcel containing a mailable Division 5.1 or 5.2 material must be plainly and durably marked on the address side with “Surface Only” or “Surface Mail Only” and “ORM-D” immediately following or below the proper shipping name (e.g., Consumer Commodity). A shipper’s declaration for dangerous goods is not required for a mailable Division 5.1 or 5.2 material sent via surface transportation.

**346 Toxic Substances and Infectious Substances (Hazard Class 6)****346.1 Definitions**

Hazard Class 6 consists of two divisions:

- a. *Division 6.1* includes toxic substances, poisons and irritating material. Examples of Division 6.1 materials (not all of which are mailable) include bromobenzyl cyanide, methyl bromide, motor fuel anti-knock mixtures, and tear gas.
- b. *Division 6.2* includes infectious substances. Examples of Division 6.2 materials include etiologic agents, biological products, cultures and stocks, diagnostic (clinical) specimens, sharps waste, regulated medical waste, used health care products, and forensic materials.

**346.11 Division 6.1, Toxic Substances**

The following terms are used in the standards for Division 6.1 materials:

- a. *Toxic Substance* is a poisonous material, other than a gas, that is known to be so toxic to humans as to cause death, injury, or harm to human health if swallowed, inhaled, or brought into contact with skin.

- b. *Oral Toxicity* refers to a liquid with a lethal dose (LD<sub>50</sub>) for acute oral toxicity of not more than 500 mg/kg or a solid with an LD<sub>50</sub> for acute oral toxicity of not more than 200 mg/kg that when administered by mouth is likely to cause death within 14 days in half of the test animals.
- c. *Dermal Toxicity* refers to a material with an LD<sub>50</sub> for acute dermal toxicity of not more than 1,000 mg/kg that, when administered by continuous contact with bare skin, is likely to cause death within 14 days in half of the test animals.
- d. *Inhalation Toxicity* applies to a dust or mist with a lethal concentration (LC<sub>50</sub>) for acute inhalation toxicity of not more than 10 mg/L, or a saturated vapor concentration in air at 68° F (20° C) of more than one-fifth of the LC<sub>50</sub> for acute toxicity on inhalation of vapors and with an LC<sub>50</sub> for acute inhalation toxicity of vapors of not more than 5,000 ml/m<sup>3</sup>, that when administered by continuous inhalation for 1 hour is likely to cause death within 14 days in half of the test animals.
- e. *Irritating Material* is any liquid or solid substance (such as tear gas) that gives off intense fumes and causes extreme but reversible localized irritant effects on the eyes, nose, and throat, temporarily impairing a person's ability to function.

346.12 **Division 6.2, Infectious Substances**

A Division 6.2 material must be assigned to a risk group as defined in 346.12f and DMM 601.10.17.2f. The following terms are used in the standards for Division 6.2 materials:

- a. *Infectious Substance* means a material known to contain or suspected of containing a pathogen. A pathogen is a virus or microorganism (including its viruses, plasmids, or other genetic elements, if any) or a proteinaceous infectious particle (prion) that has the potential to cause disease in humans or animals. The terms "infectious substance" and "etiologic agent" are synonymous. Assignment to a risk group is based on the known medical condition and history of the source patient or animal, endemic local conditions, symptoms of the source patient or animal, or professional judgment concerning individual circumstances of the source patient or animal. Infectious substances are subject to applicable requirements in 42 CFR 72 (Interstate Shipment of Etiologic Agents).
- b. *Biological product* means a virus, therapeutic serum, toxin, antitoxin, vaccine, blood, blood component or derivative, allergenic product, or analogous product used in the prevention, diagnosis, treatment, or cure of diseases in humans or animals. A biological product includes a material manufactured and distributed in accordance with one of the following provisions: 9 CFR 102 (Licenses for Biological Products); 9 CFR 103 (Experimental Products, Distribution, and Evaluation of Biological Products Prior to Licensing); 9 CFR 104 (Permits for Biological Products); 21 CFR 312 (Investigational New Drug Application); 21 CFR 314 (Applications for FDA Approval to Market a New Drug); 21 CFR 600–680 (Biologics); or 21 CFR 812 (Investigational Device Exemptions). A biological product known to

contain or suspected of containing a pathogen in Risk Group 2, 3, or 4 must be classed as Division 6.2, described as an infectious substance, and assigned to UN 2814 or UN 2900, as appropriate, unless otherwise excepted by standard.

- c. *Cultures and stocks* means a material prepared and maintained for growth and storage and containing a Risk Group 2, 3, or 4 infectious substance.
- d. *Diagnostic (clinical) specimen* means any human or animal material, including excreta, secretions, blood and its components, tissue, and tissue fluids being transported for diagnostic or investigational purposes, but excluding live infected animals. A diagnostic specimen is not assigned a UN identification number unless the source patient or animal has or may have a serious human or animal disease from a Risk Group 4 pathogen, in which case it must be classed as Division 6.2, described as an infectious substance, and assigned to UN 2814 or UN 2900, as appropriate. Assignment to UN 2814 or UN 2900 is based on known medical condition and history of the patient or animal, endemic local conditions, symptoms of the source patient or animal, or professional judgment concerning individual circumstances of the source patient or animal.
- e. *Regulated medical waste*, for USPS purposes, means a soft waste material (other than a sharp) known to contain or suspected of containing an infectious substance in Risk Group 2 or 3 and generated in the diagnosis, treatment, or immunization of human beings or animals; research on the diagnosis, treatment, or immunization of human beings or animals; or the production or testing of biological products. Soft medical waste includes items such as used rubber gloves, swabs, gauze, and tongue depressors. Regulated medical waste classified in Risk Group 4 is nonmailable.
- f. *Risk group* means a ranking of a microorganism's ability to cause injury through disease. A risk group is defined by criteria developed by the World Health Organization (WHO) that are based on the severity of the disease caused by the organism, the mode and relative ease of transmission, the degree of risk to both an individual and a community, and the reversibility of the disease through the availability of known and effective preventive agents and treatment. There is no relationship between a risk group and a DOT packing group. Assignment to a risk group is based on the known medical condition and history of the source patient or animal, endemic local conditions, symptoms of the source patient or animal, or professional judgment concerning individual circumstances of the source patient or animal. The sender is responsible for accurately ranking a mailable material within the correct risk group. Exhibit 346.12f details the criteria for each risk group according to the level of risk.
- g. *Sharps*, for USPS purposes, means any object contaminated with a pathogen or that may become contaminated with a pathogen through handling or during transportation and that is also capable of cutting or penetrating skin or a packaging material. Sharps include used medical

waste such as needles, syringes, scalpels, broken glass, culture slides, culture dishes, broken capillary tubes, broken rigid plastic, and exposed ends of dental wires. Sharps waste classified in Risk Group 4 is nonmailable.

- h. *Toxin* means a Division 6.1 material from a plant, animal, or bacterial source. A toxin containing an infectious substance or a toxin contained in an infectious substance must be classed as Division 6.2, described as an infectious substance, and assigned to UN 2814 or UN 2900, as appropriate.
- i. *Used health care product* means a medical, diagnostic, or research device or piece of equipment, or a personal care product used by consumers, medical professionals, or pharmaceutical providers that does not meet the definition of a diagnostic specimen, biological product, regulated medical waste, or sharps waste, is contaminated with potentially infectious body fluids or materials, and is not decontaminated or disinfected to remove or mitigate the infectious hazard prior to transportation. A used health care product classified in Risk Group 4 is nonmailable.

Exhibit 346.12f

**Risk Group Criteria**

<b>Risk Group</b>	<b>Pathogen</b>	<b>Risk to Individuals</b>	<b>Risk to Community</b>
4	A pathogen that usually causes serious human or animal disease and that can be readily transmitted from one individual to another, directly or indirectly, and for which effective treatments and preventive measures are not usually available.	High	High
3	A pathogen that usually causes serious human or animal disease but does not ordinarily spread from one infected individual to another, and for which effective treatments and preventive measures are available.	High	Low
2	A pathogen that can cause human or animal disease, but is unlikely to be a serious hazard and while capable of causing serious infection on exposure, for which there are effective treatments and preventive measures available, and the risk of spread of infection is limited.	Moderate	Low
1	A microorganism that is unlikely to cause human or animal disease. A material containing only such microorganisms is not subject to regulation as a hazardous material, but it is subject to the packaging requirements in 601.10.17.10, unless otherwise noted in 601.10.17.	None or Very Low	None or Very Low

**346.2 Mailability****346.21 General****346.211 Division 6.1, Toxic Substances**

The following conditions apply:

- a. *International Mail.* Division 6.1 toxic substances or poisons and irritating materials are prohibited.
- b. *Domestic Mail via Air or Surface Transportation.* A Division 6.1 toxic substance or poison that can qualify as an ORM–D material is permitted when packaged under the applicable requirements in Appendix C, 6A. Certain other poisonous materials are permitted to be mailed only between authorized parties under specific conditions as specified in 346.231b.

**346.212 Division 6.2, Infectious Substances**

- a. *International Mail.* Infectious and noninfectious biological substances are permitted in international mail only when sent as registered airmail letter packages and sent when they are intended for medical or veterinary use, research, or laboratory certification related to the public health; and only when such materials are properly prepared for mailing to withstand shocks, pressure changes, and other conditions related to ordinary handling in transit. The mailer must receive written approval from the office of Mailing Standards prior to mailing. See Chapter 6 and IMM 135 for specific requirements. Infectious substances are prohibited in international mail via surface transportation.
- b. *Domestic Mail via Air Transportation.* Infectious substances (etiologic agents), diagnostic (clinical) specimens, and biological products, are permitted only when they are intended for medical or veterinary use, research, or laboratory certification related to public health, and when properly prepared for mailing to withstand shocks, pressure changes, and other conditions incident to ordinary handling in transit. Unless otherwise noted, all mailable Division 6.2 materials in Risk Groups 2, 3, or 4 must be prepared to meet the requirements for air transportation. Infectious substances may be sent only in the quantities allowed in DMM 601.10.17. The following conditions also apply:
  - (1) *Infectious Substances (etiologic agents)*, biological products, cultures or stocks, and toxins known or suspected to contain a Risk Group 2, 3, or 4 pathogen, and including diagnostic specimens known or suspected to contain a Risk Group 4 pathogen are subject to the requirements in 49 CFR 173.196 and DMM 601.10.17.5. Each mailpiece must be sent as Priority Mail or First-Class Mail. Those specific Risk Group 4 materials that contain select agents listed in 42 CFR 73.4 or 73.5 must be sent Registered First-Class Mail with a return receipt.
  - (2) *Diagnostic Specimens (clinical)* classified in Risk Group 2 or 3 that meet the definition in DMM 601.10.17.2d, are subject to the requirements in DMM 601.10.17.6. Mailable materials must be sent as Express Mail, Priority Mail, or First-Class Mail.

- (3) *Sharps* are permitted, subject to the requirements in DMM 601.10.17.7, and must be mailed Priority Mail or First-Class Mail using merchandise return service. An authorization is required prior to mailing as stated in 346.233 and DMM 601.10.17.7a.
- (4) *Used Health Care Products* known or suspected to contain a Risk Group 4 pathogen are nonmailable. A used health care product meeting the definition in DMM 601.10.17.2i, and meeting the requirements in DMM 601.10.17.8, classified in Risk Group 1, 2, or 3, and being returned to the manufacturer or manufacturer's designee, is mailable as First-Class Mail, Priority Mail, or Express Mail.
- (5) *Forensic Material* known or suspected to contain a Risk Group 2 or 3 pathogen is mailable as First-Class Mail, Priority Mail, or Express Mail when meeting the requirements in DMM packaging 601.10.17.9. Forensic material known or suspected to contain a Risk Group 4 infectious substance must be packaged using DMM packaging 601.10.17.5. Forensic material in Risk Group 1 sent on behalf of a U.S. government, state, local, or Indian tribal government agency must be packaged under 601.10.17.10.
- (6) *Risk Group 1 Materials* are not subject to regulation as hazardous materials, but when presented for mailing must be properly packaged. All Risk Group 1 materials are mailable as First-Class, Priority Mail, Express Mail or Package Services.

#### 346.22 Nonmailable Class 6 Materials

When hazardous materials that are nonmailable under 346.2 and DMM 601.10.16 and 601.10.17 are found in the mailstream, the procedures in POM 139.117 must be followed if the materials present an immediate threat to persons or property. The procedures in POM 139.118 are followed when there is no immediate threat to persons or property.

#### 346.221 Division 6.1, Toxic Substances

The following Division 6.1 materials are nonmailable:

- a. *Toxic Substances*. Any toxic material having an LD<sub>50</sub> for oral toxicity of 50 mg/kg or less is nonmailable, except when sent between authorized parties under the conditions permitted in 346.231b. Examples of nonmailable toxic materials include, but are not limited to, the following:
  - (1) Aniline oil (UN1547).
  - (2) Bromoacetone (UN1569).
  - (3) 3-Chloro-4-methylphenyl isocyanate (UN2236).
  - (4) Chloropicrin (UN1580).
  - (5) Cyanogen bromide (UN1889).
  - (6) Hexaethyl tetraphosphate, liquid or solid (UN1611).
  - (7) Hydrocyanic acid aqueous solutions (UN1613).
  - (8) Methyl bromide (UN1062).
  - (9) Methyl parathion, liquid (NA3018).

- (10) Motor fuel antiknock mixtures (UN1649).
- (11) Organic phosphate compound (NA1955).
- (12) Parathion (NA2783).
- (13) Phenylcarbylamine chloride (UN1672).
- (14) Tetraethyl dithiopyrophosphate (UN1704).
- (15) Tetraethyl lead, liquid (NA1649).
- (16) Tetraethyl pyrophosphate, liquid (NA3018).
- (17) Thiophosgene (UN2474).
- b. *Irritating Materials.* All irritating materials are nonmailable. Examples include the following:
  - (1) Bromobenzyl cyanide (UN1694).
  - (2) Chloroacetophenone (UN1697).
  - (3) Diphenylamine chloroarsine (UN1698).
  - (4) Diphenylchloroarsine (UN1699).
  - (5) Tear gas (UN1700, NA1693, and UN1693), except for those containing oleoresin capsicum.

#### 346.222 **Division 6.2, Infectious Substances**

Division 6.2 materials are nonmailable as follows:

- a. Blood for transfusion known or suspected to contain a Risk Group 4 pathogen is nonmailable.
- b. Infectious substances (etiologic agents) containing a total volume of more than 50 ml for liquids (1.66 oz) or 50 g of solids are prohibited.
- c. Diagnostic (clinical) specimens containing a total volume of more than 4,000 ml of liquid or 4 Kg (8.8 lb.) of solid (or dried) per mailpiece are prohibited.
- d. Sharps medical waste and regulated medical waste that contain a Risk Group 4 pathogen are nonmailable. Mailpieces that exceed 25 pounds in weight or do not have the required authorization are prohibited.
- e. Used Healthcare products that contain Risk Group 4 pathogen are nonmailable. Mailpieces that exceed 25 pounds in weight are prohibited.

#### 346.23 **Mailable Class 6 Materials**

In addition to the mailable types of Division 6.1 and 6.2 materials cited in 346.21, the following materials are permitted to be mailed only within the conditions noted.

#### 346.231 **Division 6.1, Toxic Substances**

- a. *ORM-D Materials.* A Division 6.1 toxic substance that can qualify as an ORM-D material is mailable when all applicable conditions are met.
- b. *Toxic Substances with LD<sub>50</sub> Oral Toxicity of 50 mg/kg or Less.* A Division 6.1 toxic substance having an LD<sub>50</sub> for oral toxicity of greater than 5 mg/kg but less than or equal to 50 mg/kg is mailable only when

sent between the following authorized parties and under the specified conditions:

- (1) Toxic substances for scientific use (not outwardly or of their own force dangerous or injurious to life, health, or property) may be sent only between manufacturers, dealers, bona fide research or experimental scientific laboratories, and employees of federal, state, or local governments who have official use for such poisons and are designated by the agency head to receive or send such poisons.
- (2) Poisonous drugs and medicines may be sent only from the manufacturer or dealer of the drugs and medicines to licensed physicians, surgeons, dentists, pharmacists, druggists, cosmetologists, barbers, and veterinarians (18 U.S.C. 1716). In limited circumstances, when the mailing is initiated by a drug manufacturer or the manufacturer's registered agent, customers may return prescription drugs to the manufacturer or its registered agent as indicated in 483.6

346.232 **Other Nonregulated Toxic Materials**

Liquids and solids, such as pesticides, insecticides, and herbicides that are not regulated as hazardous materials under 49 CFR are mailable subject to Postal Service quantity restrictions that are based on the toxicity of the material.

- a. *Liquids*. Restrictions are as follows, subject to the general packaging requirements in DMM 601.1 through 601.8:
  - (1) A nonregulated toxic liquid having an LD<sub>50</sub> of 50 to 500 mg/kg is permitted up to 16 fluid ounces per mailpiece.
  - (2) A nonregulated toxic liquid having an LD<sub>50</sub> of 500 to 2,500 mg/kg is permitted up to 32 fluid ounces in a glass primary receptacle, or up to 1 gallon in a non-glass primary receptacle. Only one primary receptacle is permitted per mailpiece.
  - (3) A nonregulated toxic liquid having an LD<sub>50</sub> of 2,500 to 5,000 mg/kg is permitted up to 1 gallon in a glass primary receptacle, or up to 2 gallons in a non-glass primary receptacle. Only one primary receptacle is permitted per mailpiece.
  - (4) A nonregulated toxic liquid having an LD<sub>50</sub> of greater than 5,000 mg/kg is permitted with no quantity restriction.
  - (5) External markings specifying the contents and shipping papers are not required for nonregulated toxic liquids.
- b. *Solids*. Restrictions are as follows:
  - (1) A nonregulated toxic solid for which an LD<sub>50</sub> rate equivalent to liquids can be established is mailable under the same quantity restrictions for Division 6.1 toxic substances specified in [Packaging Instruction 6A](#) in Appendix C and DMM 601.10.16.
  - (2) Packaging requirements for a nonregulated toxic solid are the same as those for Division 6.1 toxic substance (see [Packaging Instruction 6A](#) in Appendix C), except that up to 5 pounds may be

contained in a single primary receptacle. Only one primary receptacle is permitted per mailpiece.

- (3) External markings specifying the contents and shipping papers are not required for nonregulated toxic solids.

**346.233 Division 6.2, Infectious Substances**

Infectious substances (etiologic agents), diagnostic (clinical) specimens, biological products, cultures and stocks, sharps medical waste, regulated medical waste, used health care products, and forensic material are permitted to be mailed within specific quantity limits and packaging conditions specified in 346.3 and DMM 601.10.17.

**346.234 Non-Regulated Infectious Materials**

The following materials are not subject to regulation as Division 6.2 hazardous materials and are mailable when the packaging requirements specified in [Packaging Instructions 6H](#) in Appendix C and DMM 610.10.17.10 are met:

- a. A diagnostic (clinical) specimen known to contain or suspected of containing a microorganism in Risk Group 1, or that does not contain a pathogen. Also, a diagnostic specimen in which the pathogen has been neutralized or inactivated so that exposure to it cannot cause disease.
- b. A biological product known to contain or suspected of containing a microorganism in Risk Group 1, or that does not contain a pathogen. Also any biological product, including an experimental product or component of a product, subject to Federal approval, permit, or licensing requirements, such as those required by the Food and Drug Administration (FDA) of the Department of Health and Human Services (HHS) or the U.S. Department of Agriculture (USDA).
- c. Blood collected for blood transfusion or the preparation of blood products; blood products; tissues intended for use in surgical procedures; and human cell, tissues, and cellular and tissue-based products regulated under authority of the Public Health Service Act and/or the Food, Drug, and Cosmetic Act. Also, blood collected for blood transfusion or the preparation of blood products and sent for testing as part of the collection process, except where the person collecting the blood has reason to believe it contains a pathogen in Risk Group 2 or 3, in which case the test sample must be packaged under DMM 601.10.17.6.
- d. A material, including a Division 6.2 waste, that previously contained an infectious substance that has been treated by steam sterilization, chemical disinfection, or other appropriate method, so it no longer meets the definition of an infectious substance in Risk Group 2, 3, or 4.
- e. Forensic material in Risk Group 1 transported on behalf of a U.S. government, state, local, or Indian tribal government agency.
- f. Environmental microbiological samples, such as samples of dust from a ventilation system or mold from a wallboard, collected to evaluate occupational and residential exposure risks.

**346.3 Packaging, Marking, Labeling, and Documentation****346.31 Division 6.1, Toxic Substances**

Mailable toxic substances must be prepared as follows:

- a. *ORM-D Materials*. The applicable requirements specified in 346.211 and 346.231 must be met. [Packaging Instruction 6A](#) in Appendix C must be followed. Each mailpiece must be plainly and durably marked on the address side with “ORM-D” or “ORM-D AIR,” as applicable, immediately following or below the proper shipping name (Consumer Commodity). For air transportation, each mailpiece must bear a shipper’s declaration for dangerous goods. Mailable material sent via surface transportation must be marked on the address side as “Surface Mail Only” or Surface Only.”
- b. *Toxic Substances with LD50 Oral Toxicity of 50 mg/kg or Less*. The applicable requirements specified in 346.211 and 346.231 must be met. [Packaging Instruction 6B](#) in Appendix C must be followed. Each mailpiece must be plainly and durably marked on the address side with the proper shipping name and UN number of the material (unless exempted by DMM 601.11.11.2). Mailable materials sent via surface transportation must be marked on the address side as “Surface Mail Only” or “Surface Only.” For air or surface transportation, each mailpiece must bear a shipper’s declaration for dangerous goods (i.e., shipping paper).

**346.32 Division 6.2, Infectious Substances**

The proper packaging, marking, labeling, and documentation for mailable Division 6.2 materials are as follows:

- a. **Infectious Substances and Biological Products, Risk Group 2, 3, or 4 - Packaging Instructions are in Appendix C, 6C and DMM 601.10.17.5**

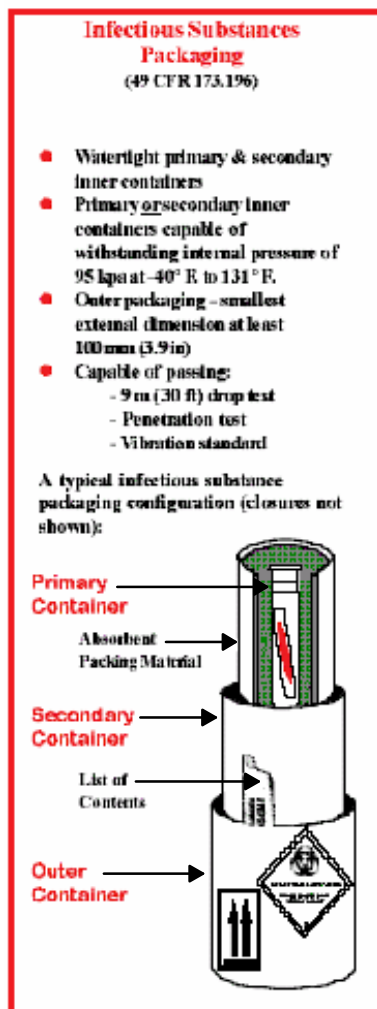
Division 6.2 materials include infectious substances (etiologic agents), biological products, cultures or stocks, and toxins known or suspected to contain a Risk Group 2, 3, or 4 pathogen. Division 6.2 also includes diagnostic specimens known or suspected to contain a Risk Group 4 pathogen. Mailable infectious substances, as specified in 346.212, must be prepared using [Packaging Instruction 6C](#) in Appendix C. An example of the required packaging is shown in display 346.32a.

  - (1) All Division 6.2 materials must meet the packaging requirements in 49 CFR 173.196. Either the primary receptacle or the secondary container must be capable of withstanding, without leakage, an internal pressure that produces a pressure differential of not less than 0.95 bar, 14 psi (95 kPa), and temperatures in the range of -40°F to 131°F (-40°C to 55°C), as required by 49 CFR 173.196.
  - (2) The material must be packaged in a securely sealed and watertight primary receptacle (such as test tube or vial) that is enclosed in another watertight and durable secondary container that is securely sealed. Several primary receptacles may be

enclosed in the secondary container if there is adequate cushioning material between them to prevent breakage during normal handling, and if the total volume of the material in all enclosed primary receptacles does not exceed 50 ml for liquids or 50 g for solids. The primary receptacle(s) and the secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e.

- (3) The space between the primary receptacle(s) and the secondary container at the top, bottom, and sides must contain enough absorbent material to take up the entire contents of the primary receptacle(s) in case of breakage or leakage.
- (4) The primary receptacle(s) and the secondary container must be securely enclosed in an outer shipping container constructed of fiberboard or other equivalent material. No external surface of the outer shipping container may be less than 3.9 inches (100 mm) as required by 49 CFR 173.196. An itemized list of the contents of the primary receptacle(s) must be enclosed between the secondary container and the outer shipping container.
- (5) Each mailpiece must be designed and constructed so that, if it were subject to the environmental and test conditions in 49 CFR 178.609, there would be no release of the contents to the environment and no significant reduction in the effectiveness of the packaging.
- (6) All mailpieces sent under DMM 601.10.17.5 ([Packaging Instruction 6C](#)) must be sent First-Class Mail or Priority Mail and must be marked on the address side with the proper shipping name and UN number of the material (e.g., “UN 2814, Infectious Substances, Affecting Humans” or “UN 2900, Infectious Substances, Affecting Animals”). Each mailpiece must bear a DOT Class 6 label for infectious substances (etiologic agents) see Exhibit 346.32d, proper UN package specification markings, and orientation markings. A shipping paper is required. Any mailpiece classified as a Risk Group 4 material and that contains any of the select agents or toxins listed in 42 CFR 73.3 and CFR or 73.4 must meet all requirements in 42 CFR 72 and must also be sent using Registered Mail service.
- (7) Articles that include dry ice as a refrigerant for the infectious substance must meet the requirements in 49 CFR 173.196(b)(2)(ii).

Exhibit 346.32a

**Infectious Substance Packaging**

b. **Diagnostic (clinical) Specimens in Risk Group 2 or 3 - Packaging Instructions are in Appendix C, 6D and DMM 601.10.17.6**

A diagnostic (clinical) specimen known or suspected to contain a Risk Group 4 pathogen must be packaged under DMM 601.10.17.5 ([Packaging Instruction 6D](#)). A diagnostic specimen classified in Risk Group 1 must be packaged under DMM 601.10.17.10 ([Packaging Instruction 6H](#)). A diagnostic specimen classified in Risk Group 2 or 3 and that meets the definition in 601.10.17.2d (346.12d) must be packaged in triple packaging, consisting of a primary receptacle, secondary container, and outer shipping container, and be prepared using [Packaging Instruction 6D](#) in Appendix C.

*Liquid Diagnostic (Clinical) Specimens.*

- (1) The specimen must be contained in a leakproof and securely sealed primary receptacle. A single primary receptacle may not contain more than 500 ml of a specimen. Multiple primary receptacles are permitted in a single mailpiece if the mailpiece

does not contain more than 4,000 ml. The primary receptacle(s) must be surrounded with sufficient cushioning material to withstand shock and pressure changes and with absorbent material capable of taking up the entire liquid contents should the primary receptacle(s) leak.

- (2) The primary receptacle(s) and the absorbent material must be securely packed within a secondary container in such a way that, under normal conditions of transport, the primary receptacle cannot break, be punctured, or leak its contents into the secondary container.
- (3) The secondary container must be leakproof, securely sealed, and placed within a strong outer shipping container having suitable cushioning material such that any leakage of the contents does not impair the protective properties of the cushioning material or the outer shipping container. The secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e.
- (4) The primary receptacle(s) or the secondary container must be capable of withstanding, without leakage, an internal pressure producing a pressure differential of not less than 0.95 bar, 14 psi (95 kPa). The completed mailpiece must be capable of successfully passing the drop test in 49 CFR 178.603 at a drop height of at least 1.2 meters (3.9 feet). The address side of the outer shipping container must be clearly and durably marked "Diagnostic Specimen." A shipping paper is not required.

*Solid (or Dried) Diagnostic Specimens*

- (5) The primary receptacle must be siftproof with a capacity of not more than 500 g (1.1 pounds).
- (6) If several fragile primary receptacles are placed in a single secondary container, they must be individually wrapped or separated with sufficient cushioning material to prevent contact between them. The secondary container must be siftproof to contain the contents should the primary receptacle(s) leak. The secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e. The outer shipping container may not exceed 4 kg (8.8 pounds) capacity. The outer shipping container must be clearly and durably marked "Diagnostic Specimen." A shipping paper is not required.

c. **Sharps Waste and Other Mailable Regulated Medical Waste - Packaging Instructions are in Appendix C, 6E and DMM 601.10.17.7**

Regulated medical waste and sharps waste known to contain or suspected of containing an infectious substance in Risk Group 4 are nonmailable. Regulated medical waste and sharps waste as defined in DMM 601.10.17.2e (346.12e) and DMM 601.10.17.2g (346.12g) and classified in Risk Group 1, 2, or 3, are mailable, only if merchandise return service is used (see DMM 507.9.) with First-Class Mail or Priority Mail.

Prior authorization is required to mail sharps and other regulated medical waste, as stated in 346.233 and DMM 601.10.17.7a. Approved mailing of sharps and other regulated medical waste containers must be prepared following [Packaging Instruction 6E](#) in Appendix C.

- (1) Authorization. Each distributor or manufacturer of a complete regulated medical waste or sharps waste mailing container system (including all component parts required to safely mail such waste to a storage or disposal facility) must obtain authorization from the USPS prior to mailing. Before applying for authorization, each type of mailing container system must be tested and certified under the standards in DMM 601.10.17.7d by an independent testing facility. The manufacturer or distributor in whose name the authorization is being sought must submit a written request to the Manager, Mailing Standards, USPS Headquarters (see DMM 608.8 for address). The request for authorization must contain the following:
  - (a) An irrevocable \$50,000 surety bond or letter of credit as proof of sufficient financial responsibility to cover disposal costs if the manufacturer (or distributor) ceases doing business before all its waste container systems are disposed of, or to cover cleanup costs if spills occur while the containers are in USPS possession. The surety bond or letter of credit must be issued in the name of the manufacturer or distributor seeking the authorization and must name the USPS as the beneficiary or obligee, as appropriate.
  - (b) Address of the headquarters or general business office of the distributor or manufacturer seeking the authorization.
  - (c) Address of each disposal and storage site.
  - (d) List of all types of mailing container systems to be covered by the request, a complete sample of each mailing container system, and certification by an independent testing facility that it has subjected the packaging materials to the testing requirements in DMM 601.10.17.7d.
  - (e) Copy of the proposed waste manifest (shipping paper) to be used with each mailing container system.
  - (f) 24-hour, toll free telephone number for emergencies.
  - (g) List of the types of waste to be mailed for disposal in each mailing container system.
  - (h) Copy of the merchandise return service label to be used with each mailing container system.

Applicants who successfully fulfill all requirements receive a written approval letter from the Manager, Mailing Standards and are assigned a unique authorization number that must be displayed on all sharps medical waste and other regulated medical waste mailing container systems distributed for mail-back purposes.

- (2) *Packaging.* Regulated medical waste and sharps waste in Risk Group 4 are nonmailable. A waste material treated by steam sterilization, chemical disinfection, or other appropriate method, so it no longer meets the definition of an infectious substance in Risk Group 2, 3, or 4, must be packaged under DMM 601.10.17.10 ([Packaging Instruction 6D](#)). The packaging for regulated medical waste and sharps waste in Risk Group 1, 2, or 3 is subject to these standards:
- (a) Regulated medical waste and sharps waste meeting the definitions in DMM 601.10.17.2e (346.12e) and 601.10.17.2g (346.12g) respectively, must be collected in a rigid, securely sealed, and leakproof primary receptacle. For sharps waste, the primary receptacle must also be puncture resistant and must not have a maximum capacity that exceeds 3 gallons in volume. For regulated medical waste, the primary receptacle must not have a maximum capacity that exceeds 5 gallons in volume. Each primary receptacle may not contain more than 50 ml (1.66 ounces) of residual waste liquid. Each primary receptacle must display the international biohazard symbol shown in Exhibit 346.32e. Each primary receptacle must maintain its integrity when exposed to temperatures between 0° and 120°F.
  - (b) The primary receptacle must be packaged within a watertight secondary container or containment system. The secondary container may consist of more than one component. If one of the components is a plastic bag, it must be at least 3 mm in thickness and be used in conjunction with a strong fiberboard box. A plastic bag by itself does not meet the requirement for a secondary container. Several primary receptacles may be enclosed in a secondary container. The primary receptacle(s) must fit securely and snugly within the secondary container to prevent breakage during ordinary processing.
  - (c) The secondary container must be enclosed in a strong outer shipping container constructed of 200-pound grade corrugated fiberboard. The joints and flaps of the outer shipping container must be securely taped, glued, or stitched to maintain the integrity of the container. When tape or glue is used to secure an outer shipping container, the material must be water-resistant. Fiberboard boxes with interlock bottom flaps (easy-fold) are not permitted as outer shipping containers unless reinforced with water-resistant tape. The secondary container must fit securely and snugly within the outer shipping container to prevent breakage during ordinary processing.

- (d) There must be enough material within a watertight barrier to absorb and retain three times the total liquid allowed within the primary receptacle (150 ml per primary receptacle) in case of leakage.
  - (e) Each mailpiece must not weigh more than 25 pounds.
  - (f) In each mailing container system, the authorized manufacturer or distributor must include a step-by-step instruction sheet that clearly details the proper sequence and method of container system assembly prior to mailing to prevent package failure during transport due to improper assembly. The instruction sheet must also include a customer service telephone number, or provide specific information on where such a telephone number is located elsewhere on the container system, for third-party users to contact if they have assembly questions or find that a component part is missing.
- (3) *Mailpiece Labeling, Marking, and Documentation.* Regulated medical waste and sharps waste must meet the following requirements:
- (a) Each primary receptacle and outer shipping container must bear a label, which cannot be detached intact, showing: (a) the company name of the manufacturer or the distributor to which the mailing authorization is issued; (b) the USPS Authorization Number, and; (c) the container ID number (or unique model number) signifying that the packaging material is certified and that the manufacturer or distributor obtained the authorization required by 601.10.17.7a.
  - (b) The primary receptacle(s) and the outer shipping container must bear the international biohazard symbol in black with either a fluorescent orange or fluorescent red background as shown in Exhibit 346.32e.
  - (c) Each mailpiece must have a four-part waste manifest, which also serves as the shipping paper. The manifest must be affixed to the outside of the mailpiece in an envelope or similar carrier that can be easily opened and resealed to allow review of the document. The manifest must comply with all applicable requirements imposed by the laws of the state from which the container system is mailed. At a minimum, the information in Exhibit 346.32b must be on the manifest.

Exhibit 346.32b

**Shipping Paper for Regulated Medical Waste and Sharps Waste Containers**

<b>Shipping Paper for Regulated Medical Waste and Sharps Waste Containers</b>
<b>1. Generator (Mailer)</b>
a. Name. b. Complete street address (not a Post Office box). c. Telephone number. d. Description of contents of mailing container. "Regulated Medical Waste" or "Regulated Medical Waste–Sharps" is required as appropriate. e. Date container was mailed. f. State permit number of approved facility in which contents are to be disposed of.
<b>2. Destination Facility (Disposal Site)</b>
Complete street address (not a Post Office box).
<b>3. Generator's (Mailer's) Certification</b>
The following certification statement must be printed on manifest: "I certify that this container has been approved for the mailing of [insert either "regulated medical waste" or "sharps waste," as appropriate], has been prepared for mailing in accordance with the directions for that purpose, and does not contain excess liquid or nonmailable material in violation of the applicable Postal Service regulations. I AM AWARE THAT FULL RESPONSIBILITY RESTS WITH THE GENERATOR (MAILER) FOR ANY VIOLATION OF 18 USC 1716 WHICH MAY RESULT FROM PLACING IMPROPERLY PACKAGED ITEMS IN THE MAIL. I also certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and in proper condition for carriage by air according to the national governmental regulations." This statement must be followed by printed or typewritten name of generator (mailer), signature of generator, and date signed.
<b>4. Destination Facility (Storage or Disposal Site)</b>
The following certification statement of receipt, treatment, and disposal must be printed on manifest: "I certify that the contents of this container have been received, treated, and disposed of in accordance with all local, state, and federal regulations." This statement must be followed by printed or typewritten name of an authorized recipient at destination facility, signature of authorized recipient, and date signed.
<b>5. Transporter Intermediate Handler Other Than the Postal Service (If Different From Destination Facility)</b>
a. Name. b. Complete address (not a Post Office box). c. Printed or typewritten name of transporter or intermediate handler. d. Signature of transporter or intermediate handler and date signed.
<b>6. Serialized Waste Manifests</b>
Each waste manifest or mail disposal service shipping record must be serialized using a unique numbering system for identification purposes.
<b>7. Comment Area</b>
Each manifest must contain an area designated for entering comments or noting discrepancies.
<b>8. Completion and Distribution of Waste Manifest</b>
Each manifest must contain instructions for properly completing the four-part form. Copies of the form must be distributed as follows: a. One copy must be kept by generator (mailer). b. One copy must be kept by transporter or intermediate handler for 90 days. c. One copy must be kept by destination facility for 90 days. d. One copy must be mailed to generator by destination facility.
<b>9. Emergency Telephone Number</b>
Each manifest must bear the following statement with appropriate information: "IN CASE OF EMERGENCY, OR THE DISCOVERY OF DAMAGE OR LEAKAGE, CALL 1-800-###-####."

- (d) The outer shipping container must bear a properly prepared merchandise return service label (see DMM 507.9). The merchandise return service permit must be held in the same name as that of the authorized medical waste manufacturer or distributor.
- (e) The outer shipping container must be marked on two opposite side walls with the package orientation marking shown in 49 CFR 172.312 to identify the proper upright position of the mailpiece during handling.
- (f) Mailpieces containing regulated medical waste or sharps waste must be marked on the address side with the correct UN number and proper shipping name (for example, "Regulated Medical Waste, UN 3291" or "Regulated Medical Waste-Sharps, UN 3291").

Package Testing. Testing must be performed by an independent testing facility on one sample of each type of mailing container system to prove compliance with DMM 601.10.17.7a. The sample mailing container system must withstand the tests in 49 CFR 178.604 (leakproof test), 178.606 (stacking test), 178.608 (vibration standard), and 178.609(e), (f), and (h) (test requirements for packaging for infectious substances). In addition, the absorbent material must withstand an absorbency test that satisfies the requirements in DMM 601.10.17.7b4. The test results must show that, if every container system prepared for mailing were to be subject to the environmental and test conditions in 49 CFR, there would be no release of the contents to the environment and no significant reduction in the effectiveness of the packaging. Periodic retesting must be performed whenever a change is made to the design of the container system, or every 24 months, whichever occurs first.

d. **Used Health Care Products - Packaging Instructions are in Appendix C, 6F and DMM 601.10.17.8**

A used health care product known or suspected to contain a Risk Group 4 pathogen is nonmailable. A used health care product meeting the definition in DMM 601.10.17.8, classified in Risk Group 1, 2, or 3, and being returned to the manufacturer or manufacturer's designee is mailable as First-Class Mail, Priority Mail, or Express Mail. . Packaging for used health care products is subject to the requirements for [Packaging Instruction 6F](#) in Appendix C.

- (1) Each used health care product must be drained of liquid to the extent possible and placed in a watertight primary receptacle designed and constructed to ensure that it remains intact under normal conditions of transport. For a used health care product capable of cutting or penetrating skin or packaging material, the primary receptacle must be capable of retaining the product without puncture of the packaging under normal conditions of transport. The primary receptacle must be marked with the international biohazard symbol as shown in Exhibit 346.32e.

- (2) Each primary receptacle must be placed inside a watertight secondary container designed and constructed to ensure that it remains intact under normal conditions of transport. The secondary container must also be marked with the international biohazard symbol, as shown in Exhibit 346.32e.
  - (3) The secondary container must be placed inside an outer shipping container with sufficient cushioning material to prevent movement between the secondary container and the outer shipping container. An itemized list of the contents of the primary receptacle and information concerning possible contamination with a Division 6.2 material, including its possible location on the product, must be placed between the secondary container and the outer shipping container. A shipping paper and a content marking on the outer shipping container are not required.
- e. **Packaging of Forensic Material in Risk Groups 2 and 3 - Packaging Instructions are in Appendix C, 6G and DMM 601.10.17.9**

Forensic material in Risk Group 1 sent on behalf of a U.S. government, state, local, or Indian tribal government agency must be packaged under DMM 601.10.17.9. Forensic material known or suspected to contain a Risk Group 4 infectious substance must be packaged under DMM 601.10.17.5. Forensic material known or suspected to contain a Risk Group 2 or 3 pathogen is mailable as First-Class Mail, Priority Mail, or Express Mail when packaged in a triple packaging consisting of a primary receptacle, secondary container, and outer shipping container. Packaging for forensic material is subject to the requirements for [Packaging Instruction 6F](#) in Appendix C.

- (1) The forensic material must be held within a securely sealed primary receptacle. The primary receptacle must be surrounded by sufficient absorbent material (for liquids) and cushioning material to protect the primary container from breakage. The absorbent material must be capable of taking up the entire liquid contents of the primary receptacle in case of leakage. The primary receptacle must be marked with the international biohazard symbol, as shown in Exhibit 346.32e.
  - (2) The primary receptacle and the absorbent and cushioning material must be enclosed in a watertight and securely sealed secondary container. The secondary container must also display the international biohazard symbol, as shown in Exhibit 346.32e.
  - (3) The secondary container must be firmly and snugly packed within a strong outer shipping container that is securely sealed. A shipping paper and a content marking on the outer shipping container are not required.
- f. **Packaging for Risk Group 1 Materials - Packaging Instructions are in Appendix C, 6H and DMM 601.10.17.10**

Risk Group 1 materials are not subject to regulation as hazardous materials (see 346.234 and DMM 601.10.17.3), but when presented for mailing, they must be properly packaged. Regulated medical waste,

sharps waste, and used health care products classified in Risk Group 1 must be packaged and mailed under the applicable requirements in 601.10.17.7 or 601.10.17.8. All other Risk Group 1 materials are mailable as First-Class Mail, Priority Mail, Express Mail, or Package Services. Such materials must be held within a securely sealed primary receptacle. Risk Group 1 diagnostic specimens and biological products are subject to the requirements for [Packaging Instruction 6H](#) In Appendix C.

(1) *Liquid Diagnostic (Clinical) Specimens and Biological Products.* A diagnostic (clinical) specimen in Risk Group 4 or a biological product in Risk Group 2, 3, or 4 must be packaged under 601.10.17.5. A diagnostic specimen in Risk Group 2 or 3 must be packaged under 601.10.17.6. The packaging of a diagnostic specimen in Risk Group 1 (e.g., a urine specimen or blood specimen used in drug testing programs or for insurance purposes) or a biological product (e.g., polio vaccine) in Risk Group 1 is subject to the following standards:

- (a) *Not Exceeding 50 ml.* A diagnostic specimen or biological product consisting of 50 ml or less per mailpiece must be packaged in a securely sealed primary receptacle. Two or more primary receptacles whose combined volume does not exceed 50 ml may be enclosed within a single mailpiece. Sufficient absorbent material and cushioning material to withstand shock and pressure changes must surround the primary receptacle(s), or be otherwise configured to take up the entire liquid contents in case of leakage. The primary receptacle(s) and the absorbent cushioning must be enclosed in a secondary container having a leakproof barrier that can prevent failure of the secondary container if the primary receptacle(s) should leak during transport. The secondary container must be securely sealed and it may serve as the outer shipping container provided it has sufficient strength to withstand ordinary postal processing. The secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e, except when the secondary container also serves as the outer shipping container. In that case, the biohazard symbol must appear either on the inner packaging or on the primary container. A shipping paper and content marking on the outer shipping container are not required.
- (b) *Exceeding 50 ml.* A clinical specimen or biological product that exceeds 50 ml must be packaged in a securely sealed primary receptacle. A single primary receptacle must not contain more than 500 ml of specimen. Two or more primary receptacles whose combined volume does not exceed 500 ml may be enclosed in a single secondary container. Sufficient absorbent material and cushioning material to withstand shock and pressure changes must

surround the primary receptacle(s), or be otherwise configured to take up the entire liquid contents in case of leakage. The primary receptacle(s) and the absorbent cushioning must be enclosed in a secondary container having a leakproof barrier that can prevent failure of the secondary container if the primary receptacle(s) should leak during transport. The secondary container cannot serve as the outer shipping container. The secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e. The secondary container must be securely and snugly enclosed in a fiberboard box or container of equivalent strength that serves as the outer shipping container. The maximum amount of a specimen that may be enclosed in a single mailpiece must not exceed 4,000 ml. A shipping paper and a content marking on the outer shipping container are not required.

- (2) *Solid (or Dried) Specimens.* A solid or dry specimen, such as a saliva swab, blood spot, or fecal smear in Risk Group 1 must be completely dried prior to placing it in or on a secure primary receptacle. Cushioning material to withstand shock and pressure changes is required only if the dry specimen is held in a breakable primary receptacle. When required, the cushioning material must surround the primary receptacle to prevent breakage or damage to the primary receptacle. The primary receptacle (and cushioning material, if required) must be enclosed in a secondary container having a leakproof barrier that can prevent failure of the secondary container if the primary receptacle breaks during shipment. The secondary container must be securely sealed and it may serve as the outer shipping container provided it has sufficient strength to withstand ordinary postal processing. The secondary container must be marked with the international biohazard symbol as shown in Exhibit 346.32e, except when the secondary container also serves as the outer shipping container. In that case, the biohazard symbol must appear either on the inner packaging or on the primary container. A shipping paper and content marking on the outer shipping container are not required.

Exhibit 346.32c

**Packaging References for Mailable Materials, Infectious Substances (Hazard Class 6, Division 6.2)**

<b>Material</b>	<b>Risk Group 1</b>	<b>Risk Group 2</b>	<b>Risk Group 3</b>	<b>Risk Group 4</b>
Blood for Transfusion	601.10.17.10	601.10.17.6	601.10.17.6	nm
Biological Product	601.10.17.10	601.10.17.5	601.10.17.5	601.10.17.5
Culture or Stock	601.10.17.10	601.10.17.5	601.10.17.5	601.10.17.5
Diagnostic Specimen	601.10.17.10	601.10.17.6	601.10.17.6	601.10.17.5
Infectious Substance (Division 6.2)	601.10.17.10	601.10.17.5	601.10.17.5	601.10.17.5
Forensic Material	601.10.17.10	601.10.17.9	601.10.17.9	601.10.17.5
Regulated Medical Waste	601.10.17.7	601.10.17.7	601.10.17.7	nm
Sharps Waste	601.10.17.7	601.10.17.7	601.10.17.7	nm
Toxin (Division 6.2)	601.10.17.10	601.10.17.5	601.10.17.5	601.10.17.5
Treated Medical Waste	601.10.17.10	n/a	n/a	n/a
Used Health Care Product	601.10.17.8	601.10.17.8	601.10.17.8	nm

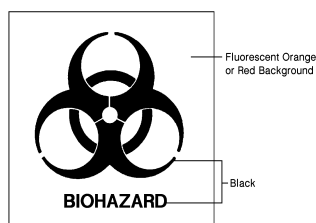
nm = Not mailable.

n/a = Not applicable.

Exhibit 346.32d

**DOT Class 6 Infectious Substance Warning Label**

Exhibit 346.32e

**Biohazard Symbol****346.4 Damaged Parcels**

If a mailpiece containing a Class 6 material is found to be damaged or leaking during Postal Service handling, the incident must be reported in accordance with EL-812 OSHA Programs and POM 139.117 and 139.118, as appropriate. The local postal safety officer (or designee) must immediately

initiate the spill response procedures in Handbook EL–812, *Hazardous Materials and Spill Response*. For spills involving infectious substances (etiologic agents), the following containment and cleanup steps must also be followed:

- a. Wear rubber gloves throughout the spill cleanup procedure.
- b. Surround the leaking package with absorbent material.
- c. Place the leaking package in another box and seal the box.
- d. Place the sealed box in a plastic bag and seal the bag.
- e. Flood affected surfaces and rinse rubber gloves with household chlorine bleach, diluted 1 ounce to 1 gallon of water, and let stand for 5 minutes. Use caution with the chlorine bleach because it is a mildly corrosive oxidizer. Wipe surfaces dry with an absorbent material, place the absorbent material in a plastic bag, and incinerate.
- f. Report the damaged parcel to the Centers for Disease Control and Prevention (CDC) at the telephone number listed in 246.
- g. Never dispose of etiologic agents in the trash. Contact the Area Environmental Compliance Specialist for specific information on the appropriate disposal procedures.

## 347 **Radioactive Materials (Hazard Class 7)**

### 347.1 **Definition**

Radioactive material is defined in 49 CFR 173.403 as any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in the table in 49 CFR 173.436 or values derived according to the instructions in 49 CFR 173.433.

### 347.2 **Mailability**

The following conditions apply:

- a. *International Mail*. Radioactive material is prohibited in international mail if required to bear a Class 7 Radioactive White-I, Radioactive Yellow-II, or Radioactive Yellow-III hazardous materials warning label (see Exhibit 325a). See IMM 135 for the specific admissibility requirements that are applicable to international shipments of radioactive material. Mailable radioactive materials must be sent as registered air letters.
- b. *Domestic Mail via Air Transportation*. All radioactive material is prohibited per DMM 601.10.18.
- c. *Domestic Mail via Surface Transportation*. Radioactive material is prohibited if it is required to bear a Class 7 Radioactive White-I, Radioactive Yellow-II, Radioactive Yellow-III hazardous materials warning label, or the Fissile label (see Exhibit 325a). Mailable radioactive materials may not have an activity content that exceeds the limits in Exhibit 347.22 (which are one-tenth of the values specified in 49 CFR 173.425), and must be one of the following materials (proper shipping names and/or UN identification numbers in 49 CFR 172.101):

- (1) A radioactive material eligible to be shipped as a limited quantity under 49 CFR 172.101, Radioactive material, excepted package – Limited quantity of material, UN 2910.
- (2) An excepted instrument, article, or device including an instrument and manufactured article (such as a clock, electronic tube, or apparatus) or a similar device that has a radioactive material in gaseous or nondispersible solid form as a component part, Radioactive material, excepted package – instruments *or* articles, UN 2911.
- (3) An excepted article containing natural uranium or thorium, including manufactured articles in which the sole radioactive material is natural or depleted uranium or natural thorium, Radioactive material, excepted package – articles manufactured from natural uranium or depleted uranium or natural thorium, UN 2909.

347.21 **Nonmailable Radioactive Materials**

Any package bearing, or required to bear, one of the Class 7 hazardous materials warning labels for radioactive materials shown in Exhibit 325a is nonmailable under any conditions. Report nonmailable materials found in the mailstream to the appropriate officials in accordance with POM 139.117 and 139.118, as applicable. See 347.5 for emergency procedures.

347.22 **Mailable Radioactive Materials**

As stated in 347.2, the only categories of radioactive material that are mailable in international mail or in domestic mail via surface transportation are those that do not have an activity level exceeding the limits in [Exhibit 347.22](#) and are eligible under 49 CFR to be shipped as excepted packages for limited quantities; excepted packages for instruments and articles; and excepted packages for articles containing natural uranium or thorium. The mailer must provide accurate documentation of the activity limits, which must not exceed those specified in [Exhibit 347.22](#).

## Exhibit 347.22

**Activity Limits for Mailable Instruments, Articles, and Limited Quantity Radioactive Materials**

Nature of Contents	Limits for Each Instrument or Article <sup>1</sup>	Package Limits <sup>1</sup>	Materials Package Limits <sup>1</sup>
Solids:			
Special form	$10^{-3}$ A <sub>1</sub>	0.1 A <sub>1</sub>	$10^{-4}$ A <sub>1</sub>
Normal form	$10^{-3}$ A <sub>2</sub>	0.1 A <sub>2</sub>	$10^{-4}$ A <sub>2</sub>
Liquids:			
<i>Tritiated water:</i>			
<0.0037 TBq/liter (0.1 Ci/L)			3.7 TBq (100 Ci)
0.0037 TBq to 0.37 TBq/L (0.1 Ci to 1.0 Ci/L)			0.37 TBq (10 Ci)
>0.037 TBq/L (1.0 Ci/L)			0.0037 TBq (0.1 Ci)
<i>Other Liquids:</i>	$10^{-4}$ A <sub>2</sub>	$10^{-2}$ A <sub>2</sub>	$10^{-5}$ A <sub>2</sub>
Gases:			
Tritium <sup>2</sup>	$2 \times 10^{-3}$ A <sub>2</sub>	$2 \times 10^{-2}$ A <sub>2</sub>	$2 \times 10^{-3}$ A <sub>2</sub>
Special form	$10^{-4}$ A <sub>1</sub>	$10^{-3}$ A <sub>1</sub>	$10^{-4}$ A <sub>1</sub>
Other form	$10^{-4}$ A <sub>2</sub>	$10^{-3}$ A <sub>2</sub>	$10^{-4}$ A <sub>2</sub>

<sup>1</sup> For mixture of radionuclides, see 49 CFR 173.433(d).

<sup>2</sup> These values also apply to tritium in activated luminous paint and tritium adsorbed on solid carriers.

347.3 **Packaging**

The following packaging requirements apply:

- a. *Limited Quantities* (49 CFR 173.421). Radioactive materials whose activity per package does not exceed the limits specified in [Exhibit 347.22](#) are excepted from specification packaging, marking, and labeling requirements. All applicable conditions for [Packaging Instruction 7A](#) in Appendix C must be met.
- b. *Instruments and Articles* (49 CFR 173.424). Instruments and manufactured articles (including clocks, electronic tubes, or apparatus) or similar devices having radioactive materials in gaseous or nondispersible solid form as a component part (whose activity level does not exceed the limits specified in [Exhibit 347.22](#)) are excepted from specification packaging, marking, and labeling requirements. All applicable conditions for [Packaging Instruction 7A](#) in Appendix C must be met.
- c. *Excepted Articles Containing Uranium or Thorium* (49 CFR 173.426). Manufactured articles in which the sole radioactive material is natural or depleted uranium or natural thorium (whose activity level does not exceed the limits specified in [Exhibit 347.22](#)) are excepted from specification packaging, marking, and labeling requirements. All applicable conditions for [Packaging Instruction 7A](#) in Appendix C must be met.

**347.4 Marking**

The outside of the inner receptacle or the outside of the secondary packaging must be marked "Radioactive." The address side of the mailpiece must clearly and prominently display one of the following markings, as applicable:

- a. *Mailable Limited Quantity Shipments.* "This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package—limited quantity of material, UN2910, and is within Postal Service activity limits for mailing."
- b. *Mailable Instruments and Articles.* "This package conforms to the conditions and limitations specified in 49 CFR 173.424 for radioactive material, excepted package—instruments or articles, UN2911, and is within Postal Service activity limits for mailing."
- c. *Mailable Excepted Articles Containing Uranium or Thorium.* "This package conforms to the conditions and limitations specified in 49 CFR 173.426 for radioactive material, excepted package—articles manufactured from natural uranium (or natural thorium), UN2909, and is within Postal Service activity limits for mailing."

**347.5 Emergency Procedures**

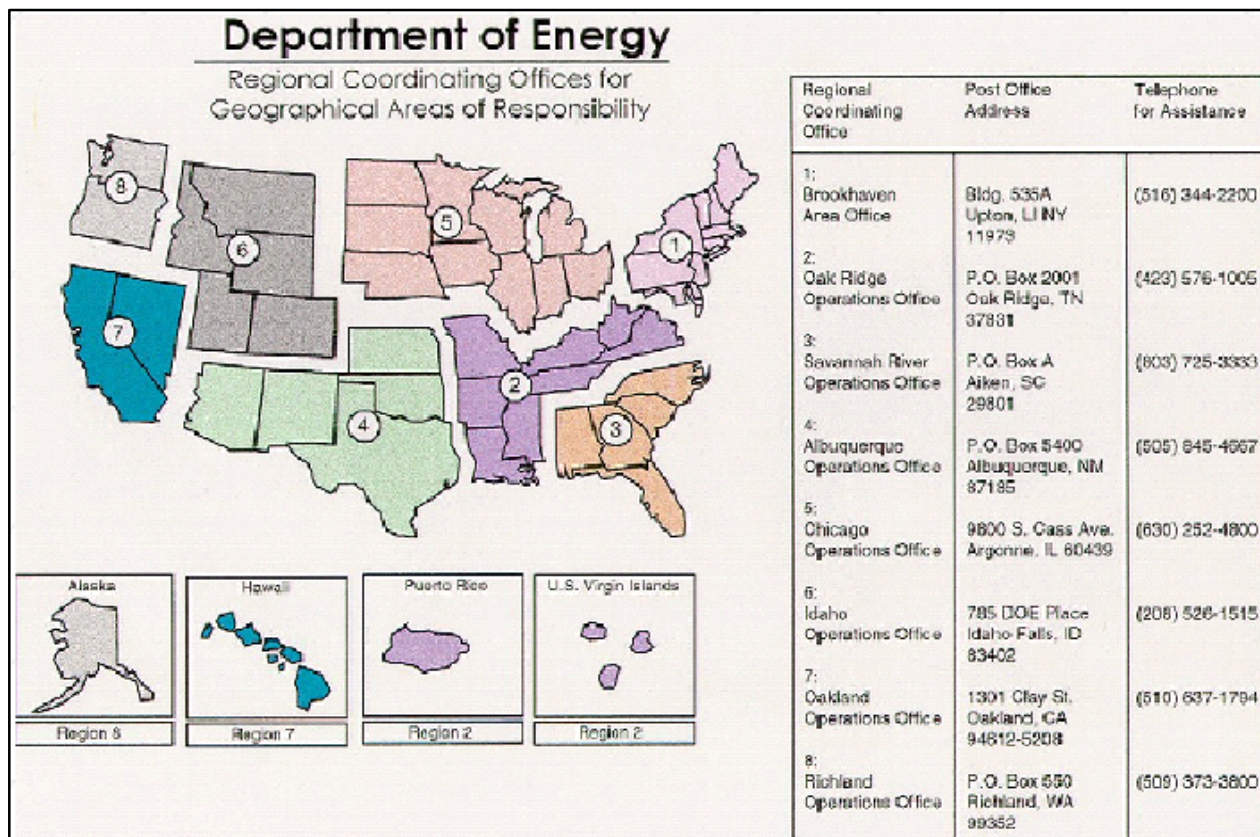
When a nonmailable package of radioactive material is discovered intact in the mailstream, the following procedures must be immediately followed:

- a. Place the parcel at least 15 feet from other mail or personnel. Under no circumstances may the package be dispatched.
- b. Report the mailpiece to the appropriate officials in accordance with POM 139.117 and 139.118, as applicable.
- c. If a package of radioactive material is damaged or is leaking, immediately contact the facility safety officer (or designee). The safety officer will:
  - Follow the appropriate spill-response procedures.
  - Isolate the area around the damaged package to prevent contact with people.
  - Isolate any conveyor, belt, chute, or other equipment or conveyance, including mailbags, in which the radioactive material has leaked or may have leaked.
  - Rope off or guard the isolated area whenever practical.
  - Place a temporary sign indicating the presence of radioactive materials and bearing a warning to stay beyond the edge of the roped area.

The local postmaster or facility manager must immediately request the assistance of qualified persons to check radiation hazards and to supervise the salvage and decontamination. This assistance may be received from the mailer (if known) or from one of the following contacts:

- (1) Nearest office of the Department of Energy (DOE) as listed in Exhibit 347.5c(1) or DOE's national emergency number and website are:  
DEPARTMENT OF ENERGY (DOE)  
EMERGENCY OPERATIONS CENTER  
202-586-8100  
  
[www.doe.gov](http://www.doe.gov)
- (2) Local health, fire, or police departments.
- (3) Local civil defense authorities.
- (4) Nearby military installations.
- (5) Nearby scientific laboratories.
- (6) The Nuclear Regulatory Commission, the Environmental Protection Agency, and the Federal Emergency Management Agency, whose national emergency numbers and websites are as follows:  
NUCLEAR REGULATORY COMMISSION (NRC)  
301-816-5100  
  
[www.nrc.gov](http://www.nrc.gov)  
ENVIRONMENTAL PROTECTION AGENCY (EPA)  
NATIONAL RESPONSE CENTER  
800-424-8802  
202-426-2675  
  
[www.epa.gov](http://www.epa.gov)  
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)  
NATIONAL EMERGENCY COORDINATION CENTER  
202-646-2400  
  
[www.fema.gov](http://www.fema.gov)

Exhibit 347.5c(1)

**DOE Regional Coordinating Offices****348 Corrosives (Hazard Class 8)****348.1 Definition**

A *corrosive* is any liquid or solid that causes visible destruction or irreversible alteration in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel. The term "corrosive" includes all items commonly referred to as acids, as well as most batteries.

**348.2 Mailability**

- a. *International Mail.* All corrosives are prohibited.
- b. *Domestic Mail.* A corrosive that can qualify as an ORM-D material and be renamed with the proper shipping name, "Consumer Commodity", is permitted via air or surface transportation subject to the following:
  - (1) A liquid mixture must be 1 pint (16 oz) or less and must contain 15 percent or less corrosive material, with the remainder of the mixture not being a hazardous material, unless otherwise specified in 348.22 for a specific corrosive material.

- (2) A solid mixture must be 10 pounds or less per primary receptacle and must contain 10 percent or less corrosive material, with the remainder of the mixture not being a hazardous material, unless otherwise specified for a specific corrosive solid.

#### 348.21 **Nonmailable Corrosives**

Nonmailable corrosives include the following:

- a. *Batteries* (UN2794, UN2795) with liquid electrolyte (such as automobile lead acid batteries), except for the nonspillable type allowed under 348.22.
- b. *Nitric Acid* (UN2031, UN2032).
- c. *Fuming and Spent Sulfuric Acids* (UN1831, UN1832).
- d. *Hydrofluoric Acid* (UN 1790).
- e. *Mercury*, and items containing mercury, including thermometers.

#### 348.22 **Mailable Corrosives**

As a rule, liquid corrosives are limited to 15 percent solution or less as stated in 348.2 and DMM 601.10.19, unless otherwise specified below. Mailable corrosives include the following:

- a. *Acetic Acid* (UN2790). Acceptable in solutions that qualify as an ORM-D material and contain less than 80 percent acid and do not exceed 1 pint. Only one primary receptacle is permitted per mailpiece. [Packaging Instruction 8A](#) must be followed.
- b. *Batteries*. Mailable batteries include:
  - (1) 49 CFR identifies lithium batteries as Class 9 (Miscellaneous Hazardous Materials). Primary (non-rechargeable) lithium batteries and cells are prohibited via air transportation. Mailable batteries must be securely packaged to preclude a direct short. A strong outer packaging must be capable of firmly and securely holding the inner contents and must be clearly marked on the address side with "Surface Mail" or "Surface Mail Only." In addition, the general packaging requirements in DMM 601.1 through 601.8 apply.
  - (2) Common household dry-cell batteries such as sizes AA, AAA, C, D, etc. are generally not regulated as hazardous materials and therefore mailable. Mailable batteries must be removed from the device they power and protected from short circuiting. Packaging requirements in DMM 601.1 through 601.8 apply.
  - (3) A nonspillable wet battery containing liquid electrolyte is permitted to be mailed only if the battery casing is completely sealed to prevent the liquid corrosive from spilling during Postal Service handling, as stated in DMM 601.10.19.4. Nonspillable batteries with UN2800 are prohibited in international mail, but may be sent as domestic mail via air or surface transportation when prepared within the conditions of [Packaging Instruction 8B](#) in Appendix C.

- c. *Hydrochloric Acid* (UN1789). Acceptable only in solutions not exceeding 10 percent acid that can qualify as an ORM-D material. [Packaging Instruction 8A](#) in Appendix C must be followed.
- d. *Sulfuric Acid* (UN2796). Acceptable in solutions of less than 25 percent acid that qualify as an ORM-D material. Mailable liquids must be packed in a primary receptacle not exceeding 1 pint. Only one primary receptacle is permitted per mailpiece. [Packaging Instruction 8A](#) in Appendix C must be followed.
- e. *Dyes* (UN2801, UN3147). Acceptable if the dyes can qualify as ORM-D materials. Mailable dyes must be packaged as required in 348.3 and [Packaging Instruction 8A](#) in Appendix C.
- f. *Photographic Mixtures*. Acceptable if the corrosive liquid solutions for preparing photographic processing mixtures can qualify as ORM-D materials. [Packaging Instruction 8A](#) in Appendix C must be followed. When these liquids are in securely closed and sealed bottles that are properly cushioned, they may be packed in the same outside shipping container with required amounts of packaged dry chemicals not classified as hazardous materials (provided no dangerous reaction would occur should the contents of the bottles be mixed with the dry chemicals).

### 348.3 **Packaging**

Mailable corrosives, both liquids and solids, must meet the applicable requirements in 348.2b and be prepared as required in [Packaging Instruction 8A](#) in Appendix C, or as permitted in 348.22.

### 348.4 **Marking and Documentation**

For air transportation, a mailpiece containing a mailable corrosive material must be plainly and durably marked on the address side with “ORM-D AIR” immediately following or below the proper shipping name (Consumer Commodity). A properly completed shipper’s declaration for dangerous goods must be affixed to the outside of the mailpiece.

For surface transportation, a mailpiece must be plainly and durably marked on the address side with “Surface Mail Only” and “ORM-D” immediately following or below the proper shipping name (Consumer Commodity). A shipper’s declaration for dangerous goods is not required for mailable Class 8 corrosives.

## 349 **Miscellaneous Hazardous Materials (Hazard Class 9)**

### 349.1 **Definition**

*A miscellaneous hazardous material* is a substance or article that presents a hazard during transportation but does not meet the definition of any other hazard class.

Miscellaneous hazardous materials include:

- a. Any material that has an anesthetic, noxious, or other similar property that could cause extreme annoyance or discomfort to a flight crew member.
- b. Any elevated temperature material, hazardous substance, hazardous waste (other than Division 6.2 medical waste), or marine pollutant.

Examples of miscellaneous hazardous materials (not all of which are mailable) include solid dry ice, primary (non-rechargeable) lithium batteries, magnetized materials, elevated temperature substances, environmentally hazardous substances, life-saving appliances (i.e., automobile air-bags), and asbestos.

#### 349.2 **Mailability**

- a. *International Mail.* All miscellaneous hazardous materials are prohibited, except for certain magnetized materials as permitted in 349.242a and IMM 136g.
- b. *Domestic Mail.* A miscellaneous hazardous material that can be reclassified as an ORM-D material and renamed as a consumer commodity is permitted. Additionally, dry ice and magnetized materials are permitted within the specific limits provided in 349.23 and 349.24.

#### 349.21 **Nonmailable Class 9 Materials**

The following materials are prohibited:

- a. All Class 9 materials that cannot qualify as an ORM-D material, except dry ice and magnetized materials.
- b. All magnetized materials that have a measurable magnetic field strength greater than 0.00525 gauss at 15 feet.
- c. For air transportation, all magnetized materials that can cause a compass deviation at a distance of 7 feet or more.
- d. In domestic mail via air transportation, dry ice in quantities exceeding 5 pounds per mailpiece.
- e. Primary (non-rechargeable) lithium batteries are prohibited via air transportation.

#### 349.22 **Mailable Class 9 Materials**

A Class 9 material that can qualify as an ORM-D material is permitted in the domestic mail via air or surface transportation up to a weight limit of 25 pounds per mailpiece. Primary and Secondary (rechargeable) lithium batteries that contain an equivalent content of 0.5 grams of lithium or less are mailable. Primary (non-rechargeable) lithium batteries are prohibited via air transportation. Mailable batteries must be securely packed to preclude short circuiting. In addition, the general packaging requirements in DMM 601.1 through 601.8 apply.

**349.23 Dry Ice****349.231 General**

Dry ice is primarily used to keep other items cool. The items being cooled can be either mailable hazardous materials or nonhazardous items, such as medical specimens or foods.

**349.232 Characteristics and Precautions**

Dry ice (carbon dioxide solid) is produced by expanding liquid carbon dioxide to vapor and compacting the material into blocks. When dry ice converts (dissipates) to a gaseous form, it takes in heat from its surroundings. The resulting gas is heavier than air and can cause suffocation in confined areas as air is displaced. When dry ice is enclosed in a thick metal or other restrictive type of container, internal pressure builds up and could cause the container to rupture or explode. Mailpieces containing dry ice must be handled with care because its very low temperature (about  $-110^{\circ}\text{F}$  or  $-79^{\circ}\text{C}$ ) can cause severe burns to skin upon direct contact.

**349.233 Dry Ice Mailability**

Dry ice is permitted to be mailed when it is used as a refrigerant to cool the content of a mailable hazardous or nonhazardous material. Packages containing dry ice must be packed in containers that permit the release of carbon dioxide gas and conform to 49 CFR 173.217 and 175.10(a)(13). Mailpieces containing dry ice are subject to the following conditions, as applicable:

- a. *International Mail.* Dry ice is prohibited.
- b. *Domestic Mail via Air Transportation.* Dry ice is permitted in quantities of up to 5 pounds per mailpiece. Mailpieces containing dry ice are subject to the conditions for [Packaging Instruction 9A](#) in Appendix C, as applicable.
- c. *Domestic Mail via Surface Transportation.* A mailpiece sent via surface transportation (i.e., at Standard Mail rates) may contain more than 5 pounds of dry ice. Mailpiece preparation is subject to the conditions for [Packaging Instruction 9A](#) in Appendix C.

**Note:** A mailpiece that is prepared for surface transportation *must not, under any circumstances*, be routed via air transportation.

**349.24 Magnetized Materials**

A magnetized material is not classified within any of the nine hazard classes. Such material is regulated as a hazardous material only if offered for carriage on air transportation and when it has a magnetic field strength capable of causing the deviation of aircraft instruments.

**349.241 Definition**

A magnetized material is any article that has a magnetic field strength capable of causing the deviation of aircraft instruments. A magnetized material is regulated as a hazardous material when it is presented for air transportation and has a measurable magnetic field strength greater than 0.00525 gauss at 15 feet. Magnetized materials include magnets and magnetized devices such as magnetrons and light meters of sufficient

strength to possibly cause erroneous aircraft compass readings. If the maximum field strength observed at a distance of 7 feet is less than 0.002 gauss or there is no significant compass deflection (less than 0.5 degree), the article is not restricted as a magnetized material.

349.242 **Mailability**

Magnetized materials that have a magnetic field strength of 0.002 gauss or more at a distance of 7 feet from any point on the surface of the outer packaging are mailable via air transportation if properly packaged.

Magnetized materials that have a field strength greater than 0.00525 gauss at 15 feet are nonmailable under any conditions. The following requirements also apply:

- a. *International Mail.* Magnetized materials are prohibited except for those that cannot cause a compass deviation at a distance of 7 feet or more. See 622.4.
- b. *Domestic Mail via Air Transportation.* Magnetized materials that can cause a compass deviation at 7 feet or more are prohibited. A magnetized material is mailable if it is not capable of causing a compass deviation at a distance of 7 feet or more. Mailpiece preparation is subject to the conditions for [Packaging Instruction 9B](#) in Appendix C. The address side of the outer packaging must bear the magnetized material warning label shown in Exhibit 349.242b.
- c. *Domestic Mail via Surface Transportation.* Magnetized material is not regulated as a hazardous material when transported via surface transportation.

349.3 **Packaging**

For mailable Class 9 materials, the following packaging requirements as detailed in the Packaging Instructions in Appendix C apply:

- a. [Packaging Instruction 9A](#) must be followed for mailable quantities of dry ice.
- b. [Packaging Instruction 9B](#) must be followed for mailable types of magnetized materials.
- c. [Packaging Instruction 9C](#) must be followed for Class 9 miscellaneous hazardous materials that are eligible to be reclassified as mailable ORM-D materials.

**349.4 Marking and Documentation**

For air transportation, a mailable Class 9 material that can be reclassified as an ORM-D material must be plainly and durably marked on the address side with “ORM-D AIR” immediately following or below the proper shipping name (Consumer Commodity). A shipper’s declaration for dangerous goods that is prepared in triplicate must be affixed to the outside of the mailpiece.

For surface transportation, a mailable material that can be reclassified as an ORM-D material must be plainly and durably marked on the address side with “Surface Mail Only” and “ORM-D” immediately following or below the proper shipping name (Consumer Commodity).

The specific marking and documentation requirements for dry ice and magnetized materials are specified in [Packaging Instructions 9A](#) and [9B](#) in Appendix C, as applicable.

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